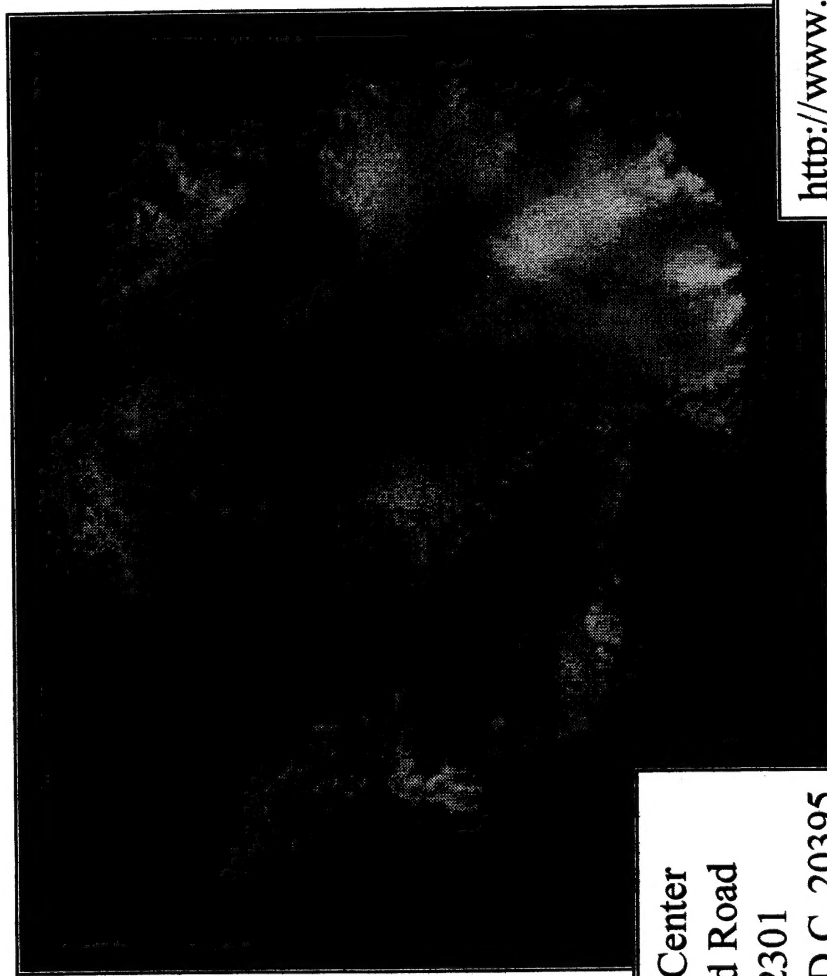


National Ice Center
Antarctic Sea Ice Atlas
1995

19990722 018



National Ice Center
4251 Suitland Road
FB4, Room 2301
Washington D.C. 20395

<http://www.natice.noaa.gov>

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PREFACE

The National Ice Center (NIC), under sponsorship of the United States Navy, the United States Coast Guard, and the National Oceanic and Atmospheric Administration (NOAA), provides sea ice analyses encompassing the "Arctic" and the "Antarctic". These analyses continue the data set established under our previous name, the Joint Ice Center. These atlases continue the near real-time integration of remotely sensed data and point observations and differ only in that the Arctic and Antarctic are split into two separate publications per hemisphere per year.

This publication is the 10th edition of the annual "Antarctic Sea Ice Atlas" published in hard copy format by the NIC. The atlas contains weekly charts depicting the sea ice extent and coverage in the Southern Hemisphere from the first week of January through December 1995.

The NIC uses a wide variety of data sources in the production of sea ice analyses. Table 1 lists the data sources used to produce the Antarctic weekly ice analyses contained in this publication. The line types used in the analyses provide metadata information with regard to sensor type. Solid lines depict boundaries derived from: point observations, Defense Meteorological Satellite Program Operational Line Scan (DMSP OLS) and NOAA Advanced Very High-Resolution Radiometer (AVHRR) data. Dash-dash-dotted line depicts boundaries derived from DMSP Special Sensor Microwave Imager (SSM/I), and dashed lines depict boundaries derived from forecast models and climatology.

Please direct questions or comments to the NIC Liaison Branch, at phone number (301) 457-5303 extension 311 or 303, facsimile number (301)457-5300, or electronic mail address: lialison@natice.noaa.gov

Atlas addendum: This publication is intended to serve as an interim solution, while transitioning to distribution via CD-ROM. The purpose of this atlas is to make all National Ice Center (NIC) sea ice charts available to customers using NIC designated archive centers. By fall 1999, it is anticipated that NIC will complete and distribute Arctic/Antarctic ice atlases on CD-ROM for 1995, 1996, 1997 and 1998. It should be noted that the charts presented in this atlas have been drawn by hand for operational use. Corrections to "hand annotations" are visible on some of the charts in the atlas.

From	To	Sensor Platform	Sensor and Type	Spectral Region	Resolution	Coverage
01-95	12-95	DMSP F-10, 11, 12, 13	OLS Fine: VIS IR SSM/I	0.4 to 1.1 μm 10.2 to 12.8 μm 19.35 and 37GHz	0.55 km 25 km	3,012km 3,012km
01-95	12-95	NOAA 12, 14	AVHRR: HRPT/LAC VIS NIR IR	0.58 to 0.68 μm 0.72 to 1.10 μm 3.55 to 3.9 μm	1.1km at nadir; 2.5km at swath edge	4,000km

TABLE 1. 1995 Antarctic Satellite Data Sources

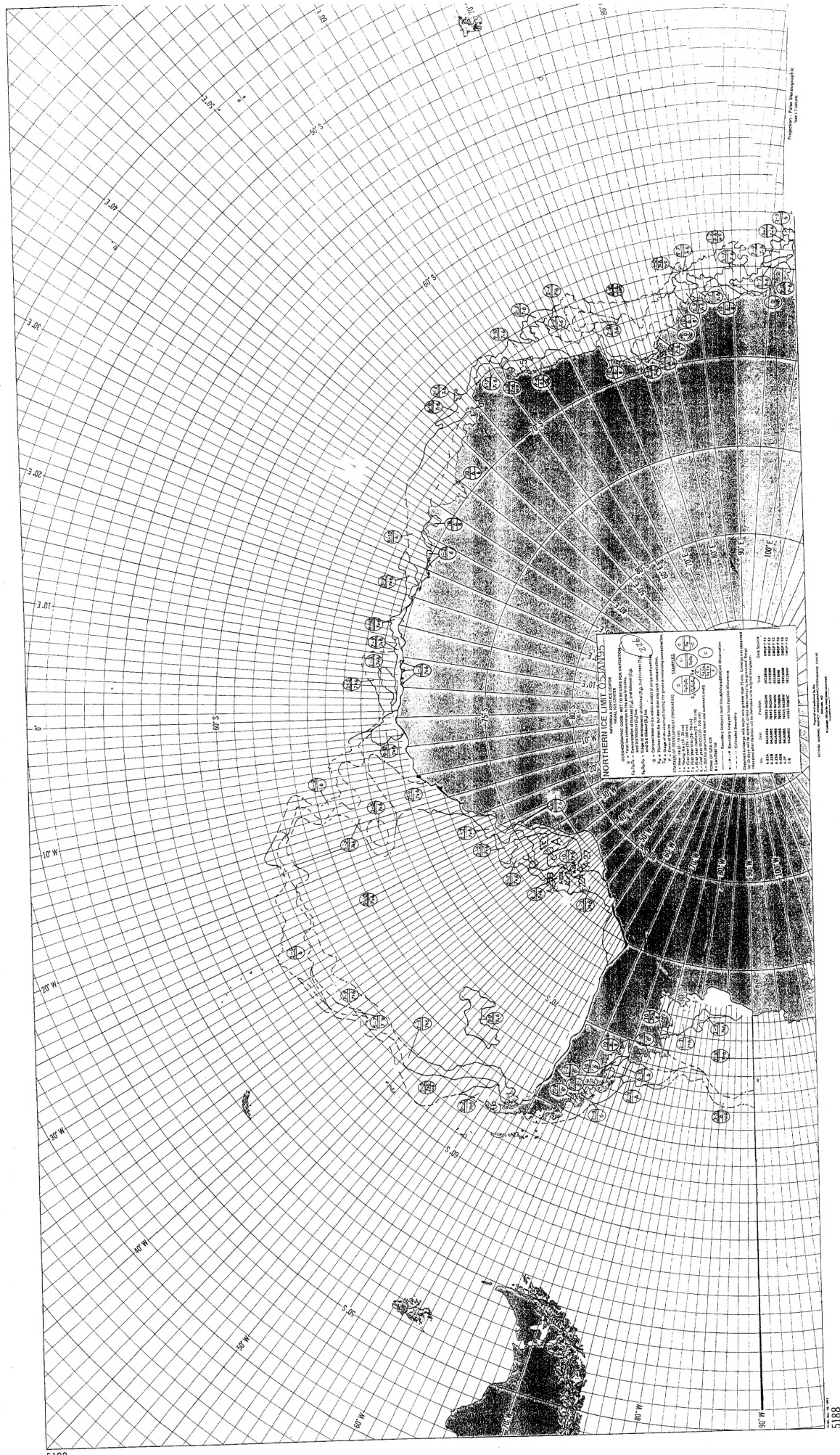
Note: DMSP F-13 launched 03/24/95

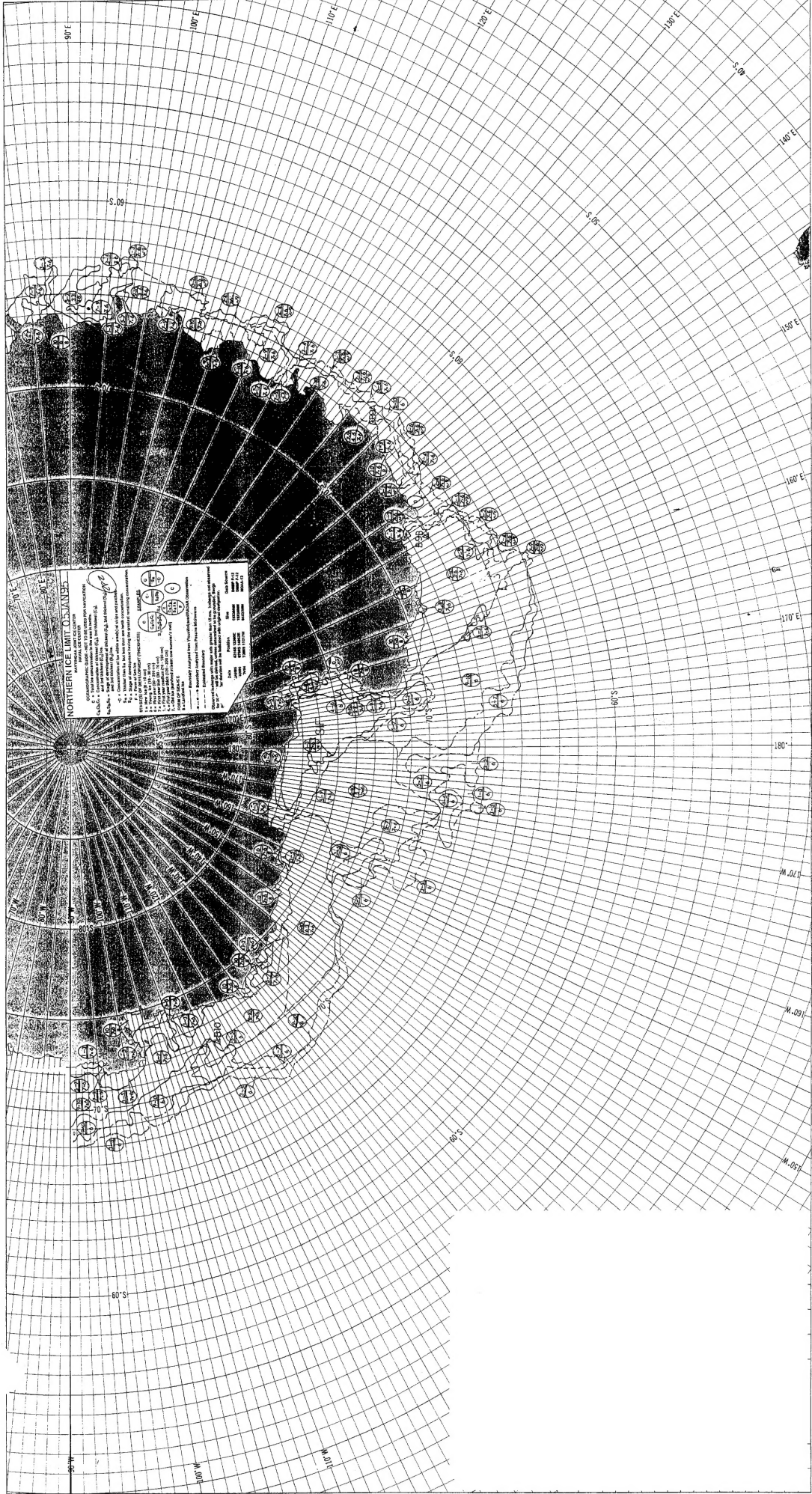
Abbreviations and Acronyms:

AVHRR- Advanced Very High Resolution Radiometer
cm- centimeter
GHz- Gigahertz
HRPT- High Resolution Picture transmission
IR- Infrared
km- kilometer
LAC- Local Area Coverage
NIR- Near Infrared
OLS- Operational Linescan System
SSM/I- Special Sensor Microwave Imager
 μm - micrometer
VIS- Visible

Antarctica satellite composite courtesy of United States Geological Survey, Flagstaff, AZ.
(<http://TerraWeb.wr.usgs.gov/TRS/projects/Antarctica/color/images>).

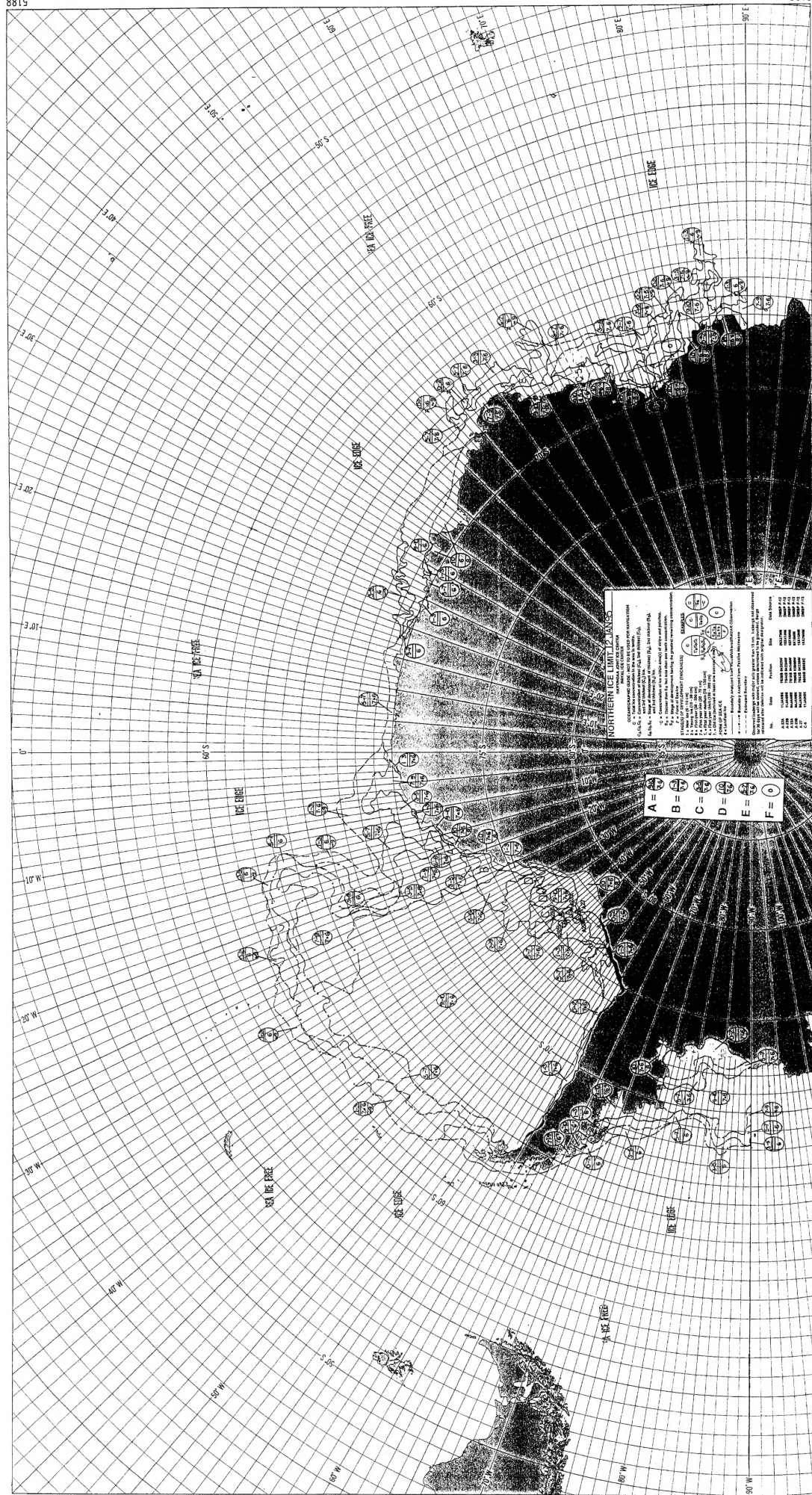
Prepared under the authority of Commander, Naval Oceanography Command, Stennis Space Center, MS 39529-5000





Printed in the United States of America

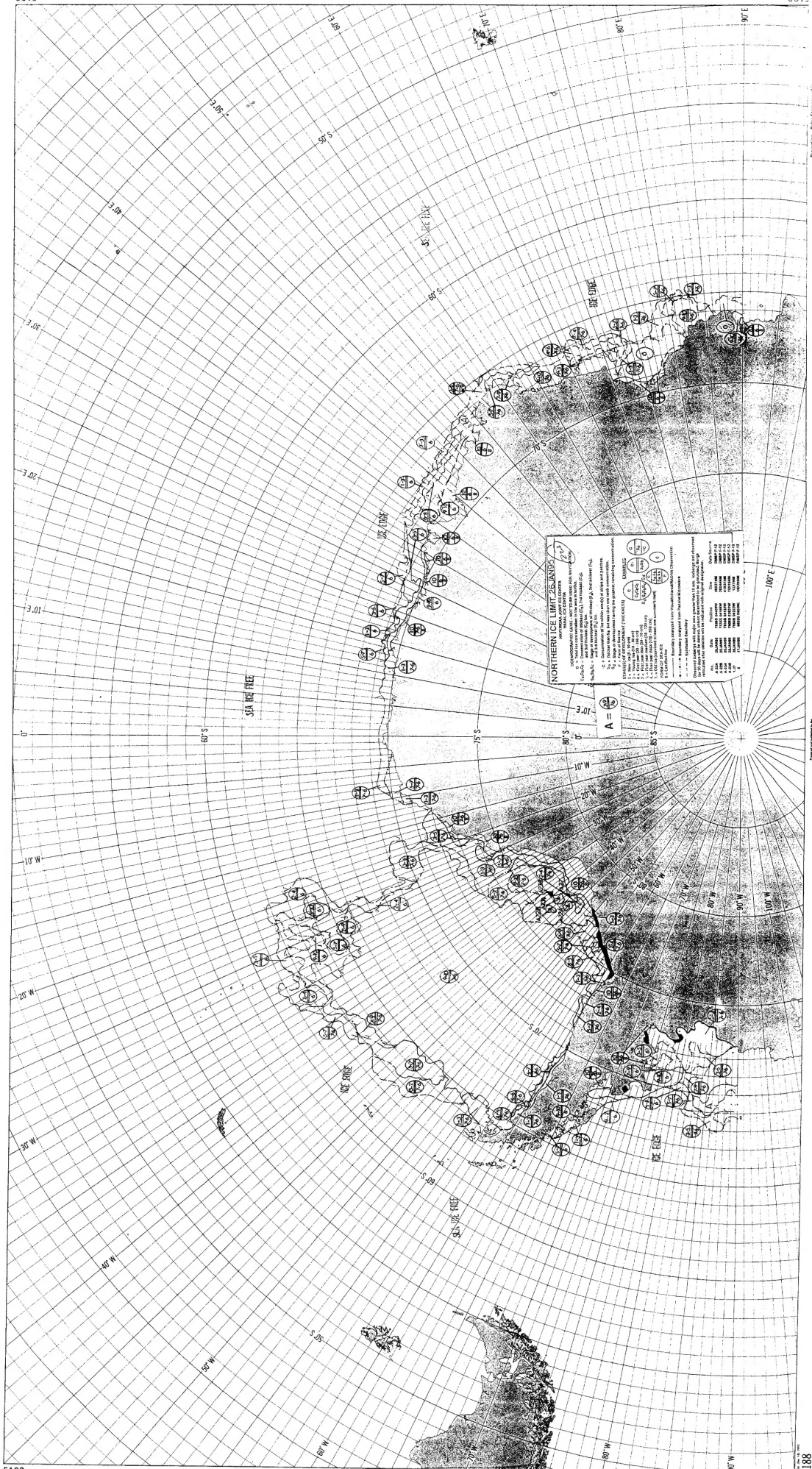
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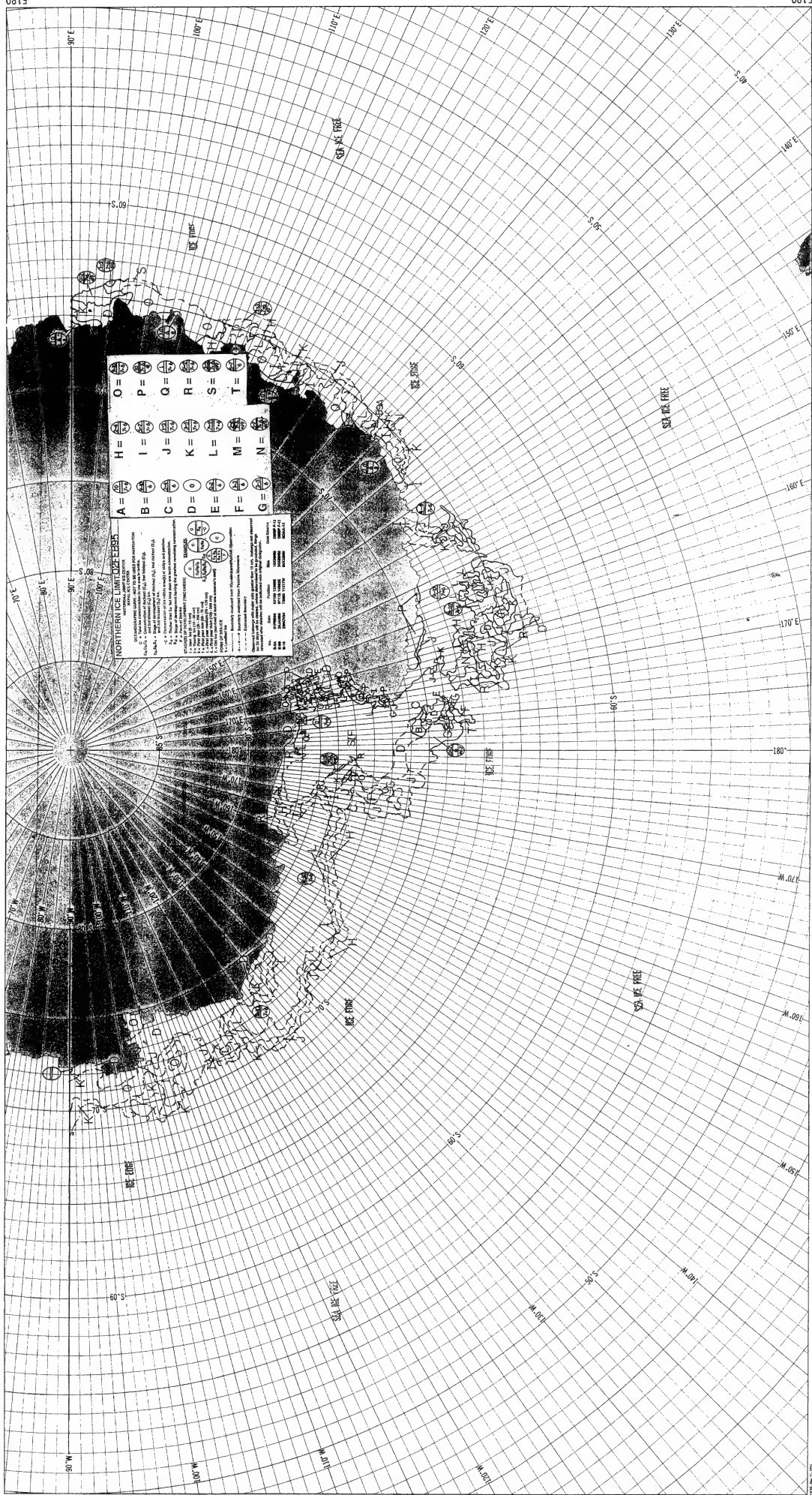






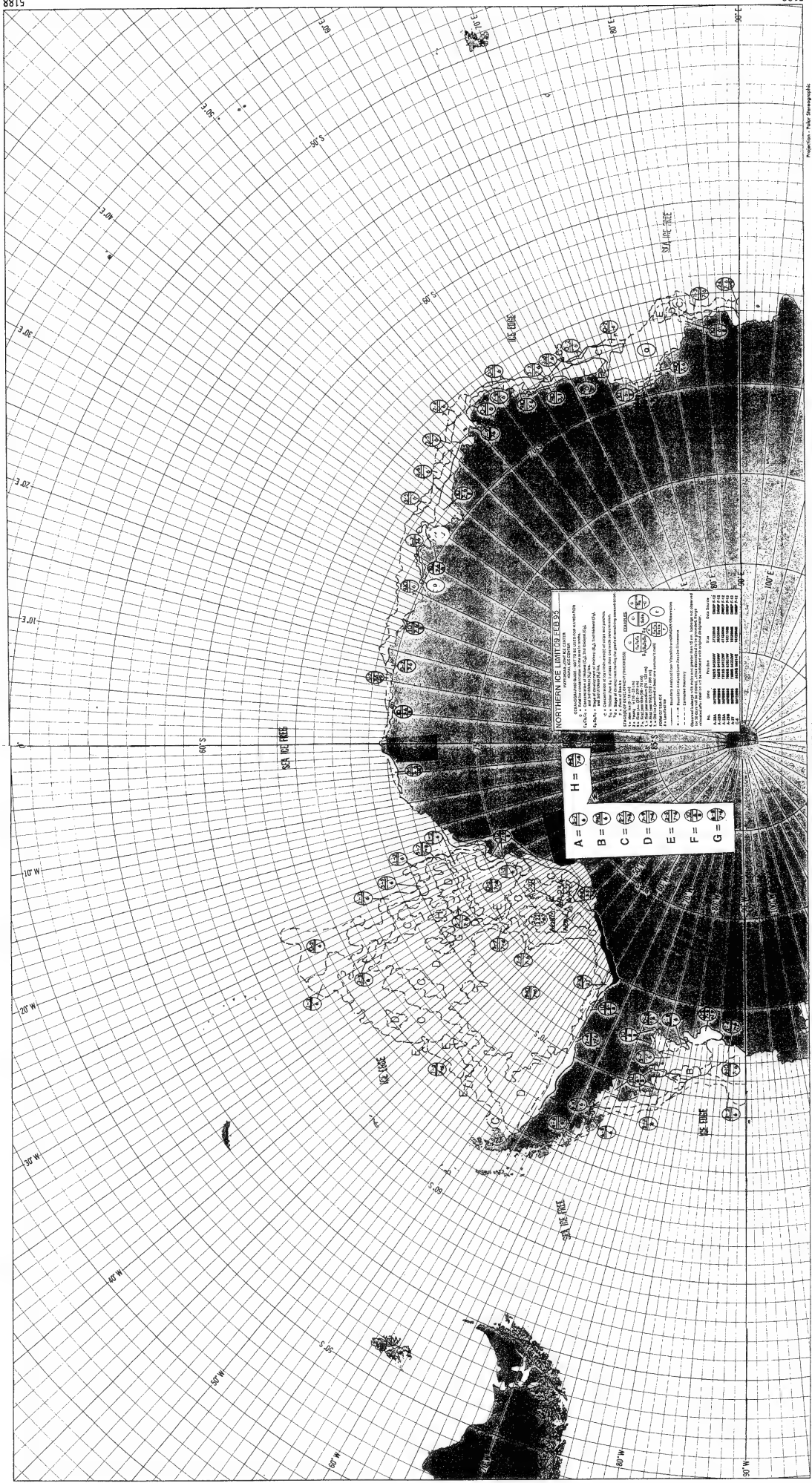






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NOAA 11-70000



NORTHERN ICE LIMITS FEB 52

SEA ICE FIELDS

Legend:

- A = (Symbol)
- B = (Symbol)
- C = (Symbol)
- D = (Symbol)
- E = (Symbol)
- F = (Symbol)
- G = (Symbol)

H = (Symbol)

Notes:

1. The symbols A through G are used to indicate the presence of sea ice fields of varying intensity. The symbols are defined as follows:

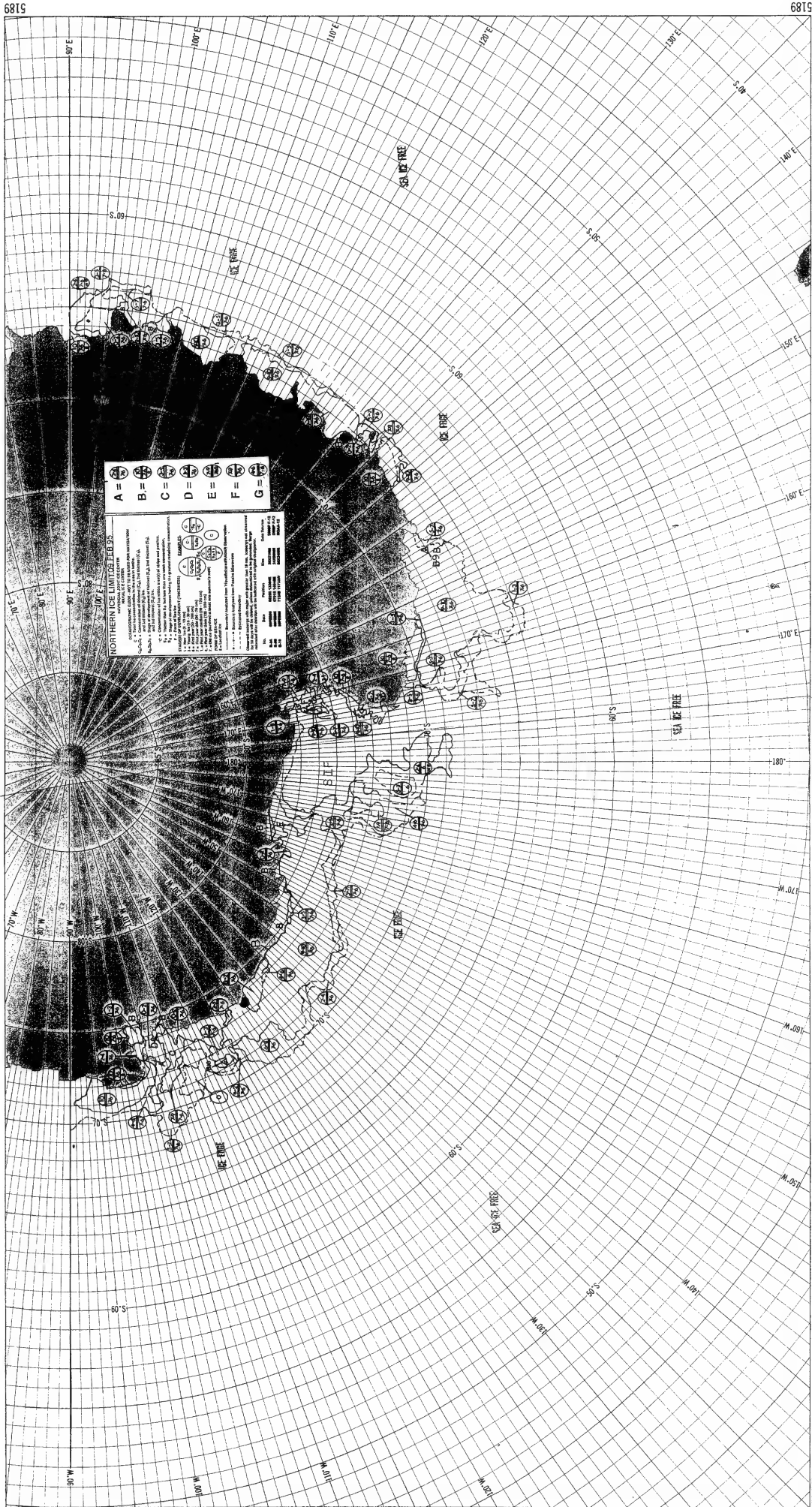
- A - Very light
- B - Light
- C - Moderate
- D - Heavy
- E - Very heavy
- F - Iceberg
- G - Iceberg

2. The symbols are used to indicate the presence of sea ice fields of varying intensity. The symbols are defined as follows:

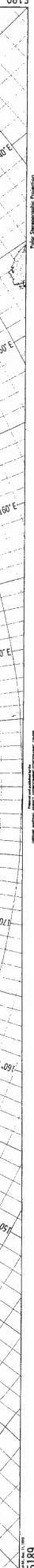
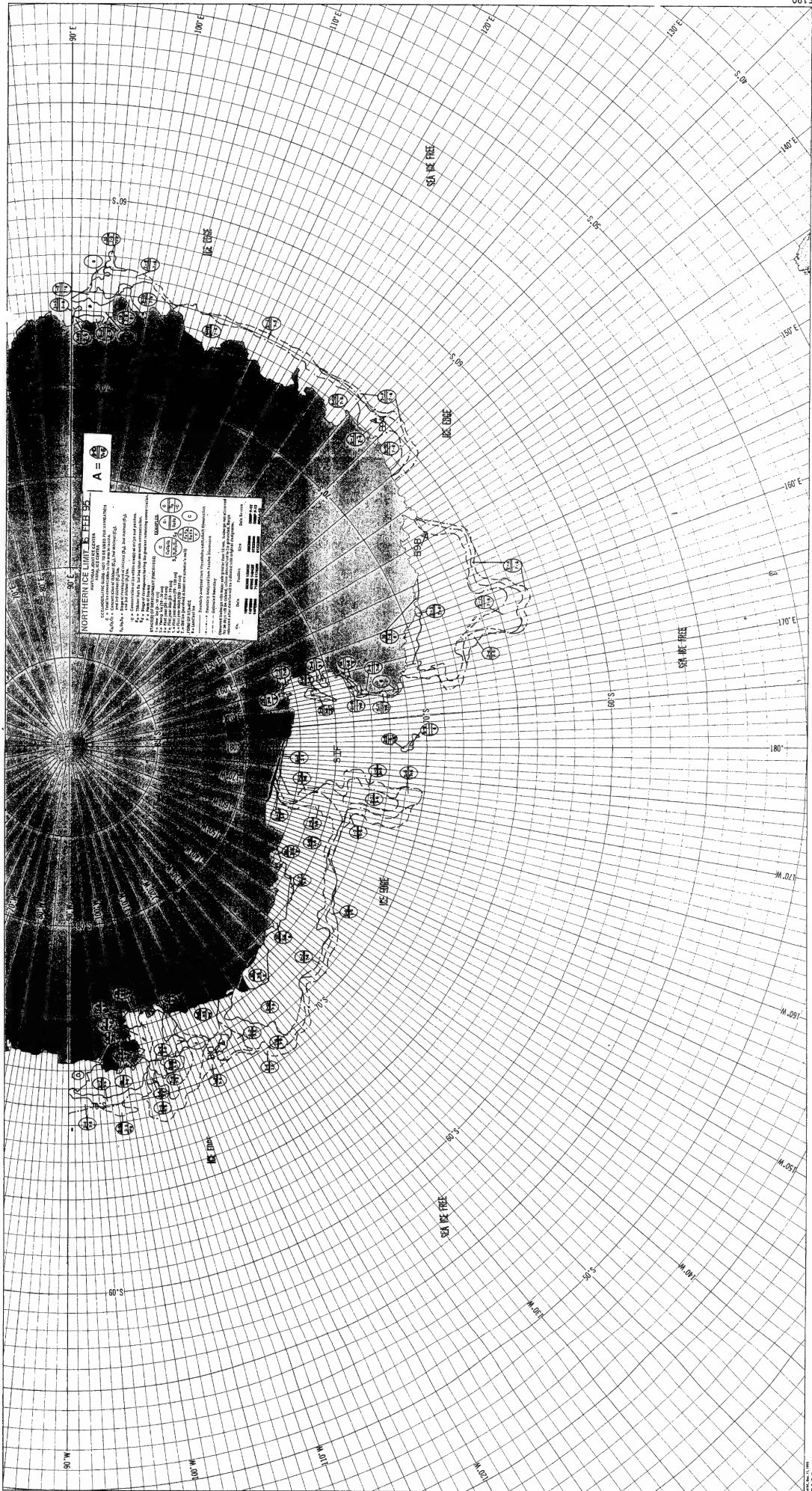
- A - Very light
- B - Light
- C - Moderate
- D - Heavy
- E - Very heavy
- F - Iceberg
- G - Iceberg

3. The symbols are used to indicate the presence of sea ice fields of varying intensity. The symbols are defined as follows:

- A - Very light
- B - Light
- C - Moderate
- D - Heavy
- E - Very heavy
- F - Iceberg
- G - Iceberg



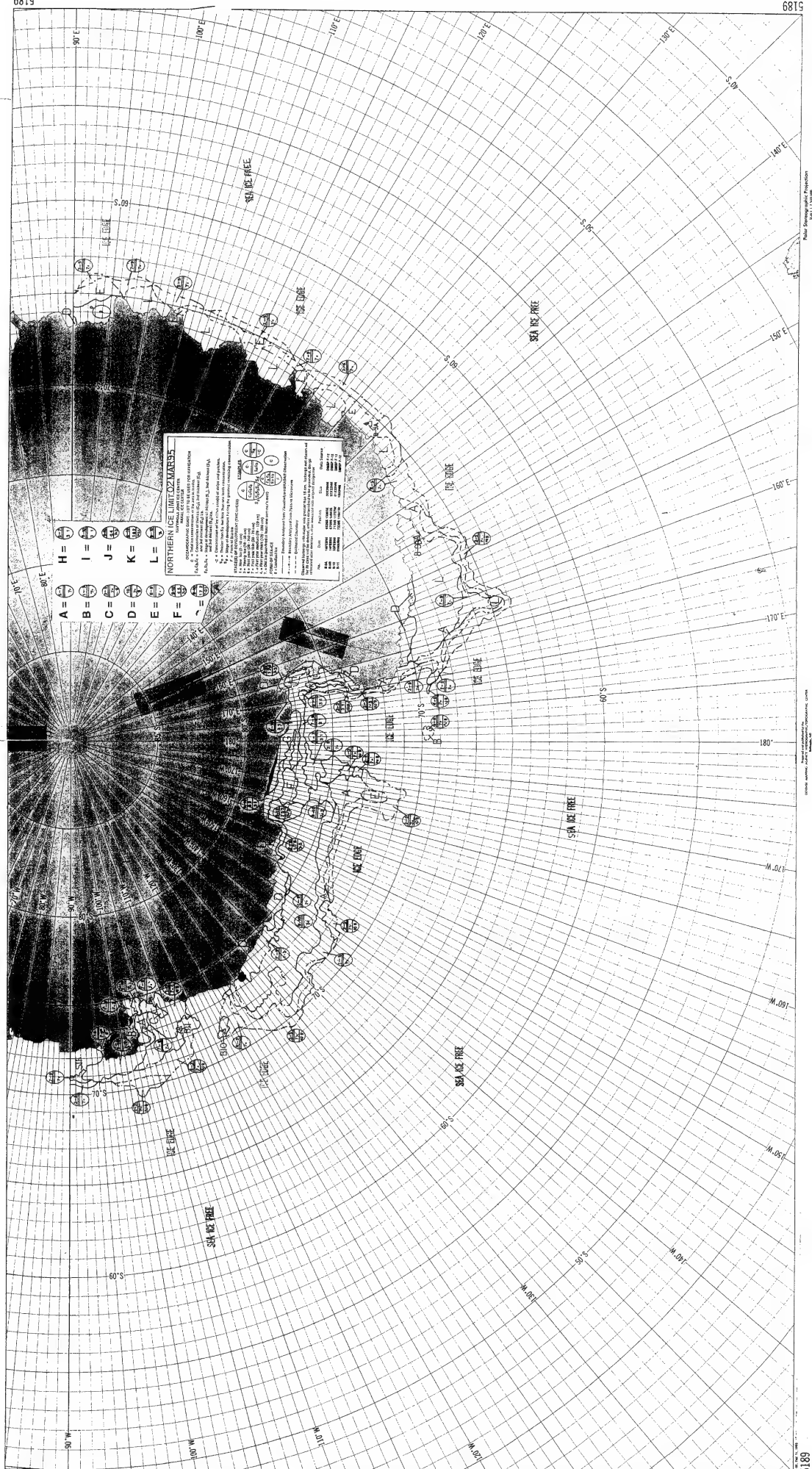


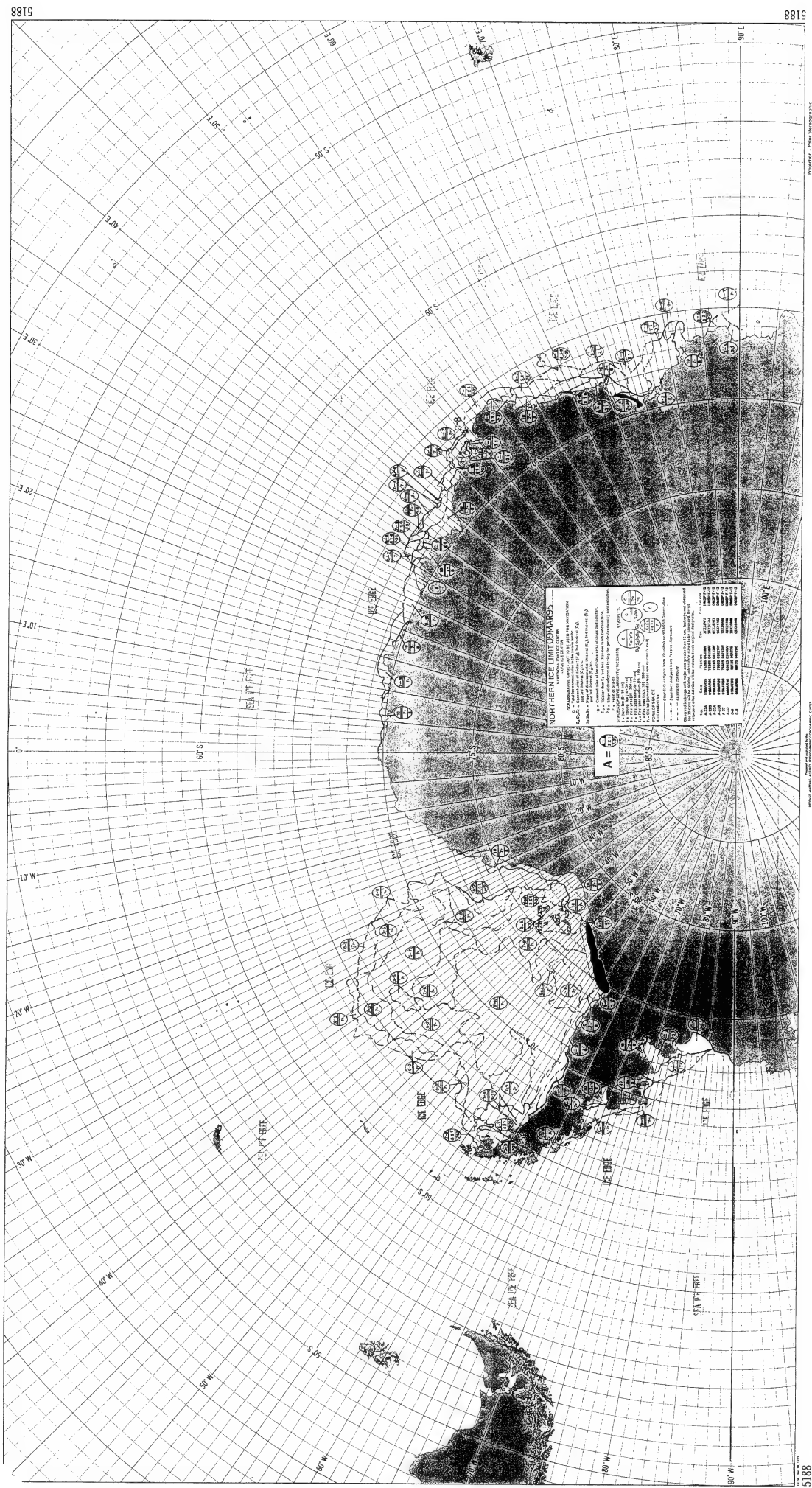












NORTH PACIFIC OCEAN

TABLE OF DATA

1. Magnetic Variation

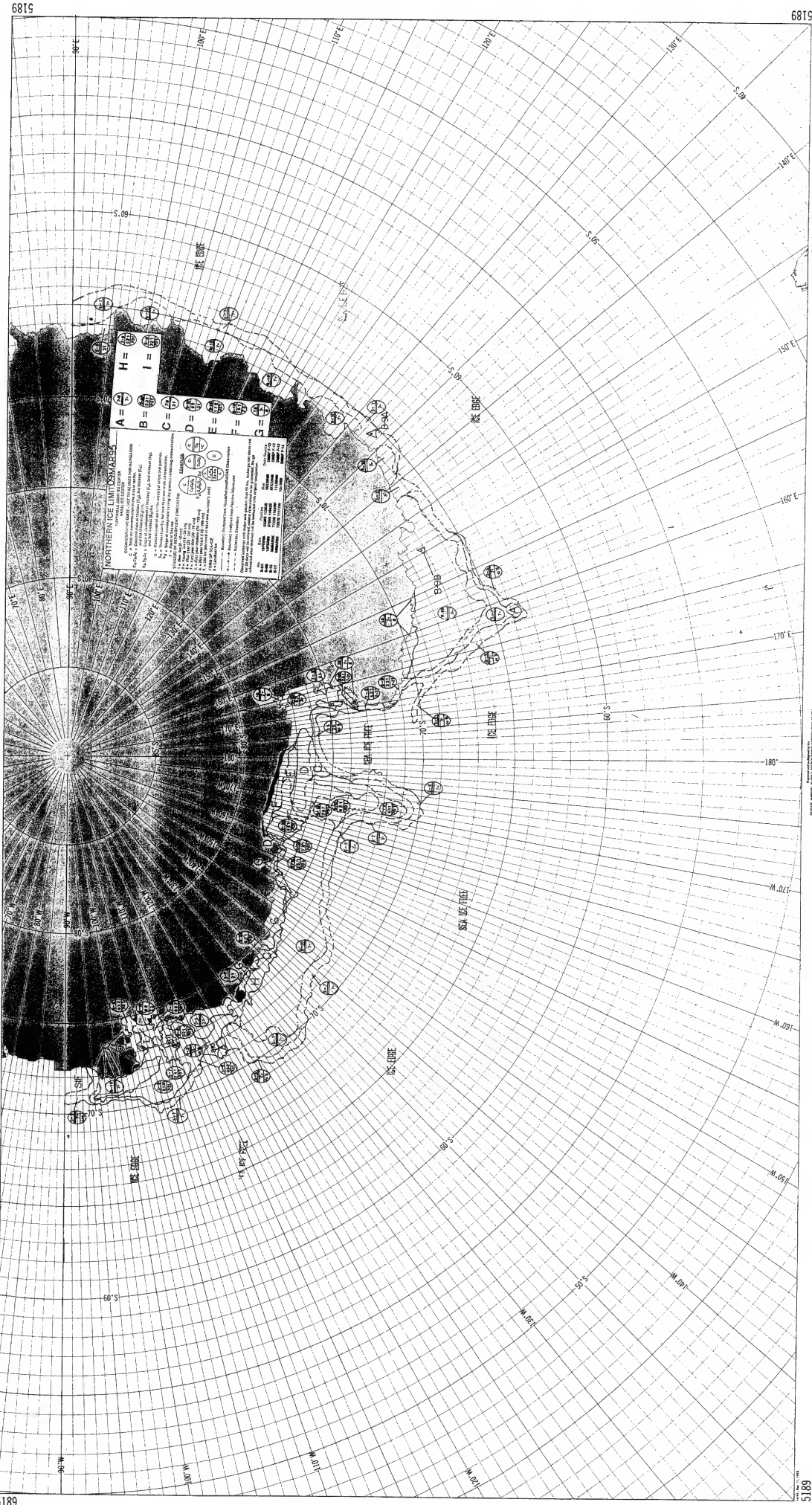
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60°	0°	60°
70°	0°	70°
80°	0°	80°
90°	0°	90°

2. True North

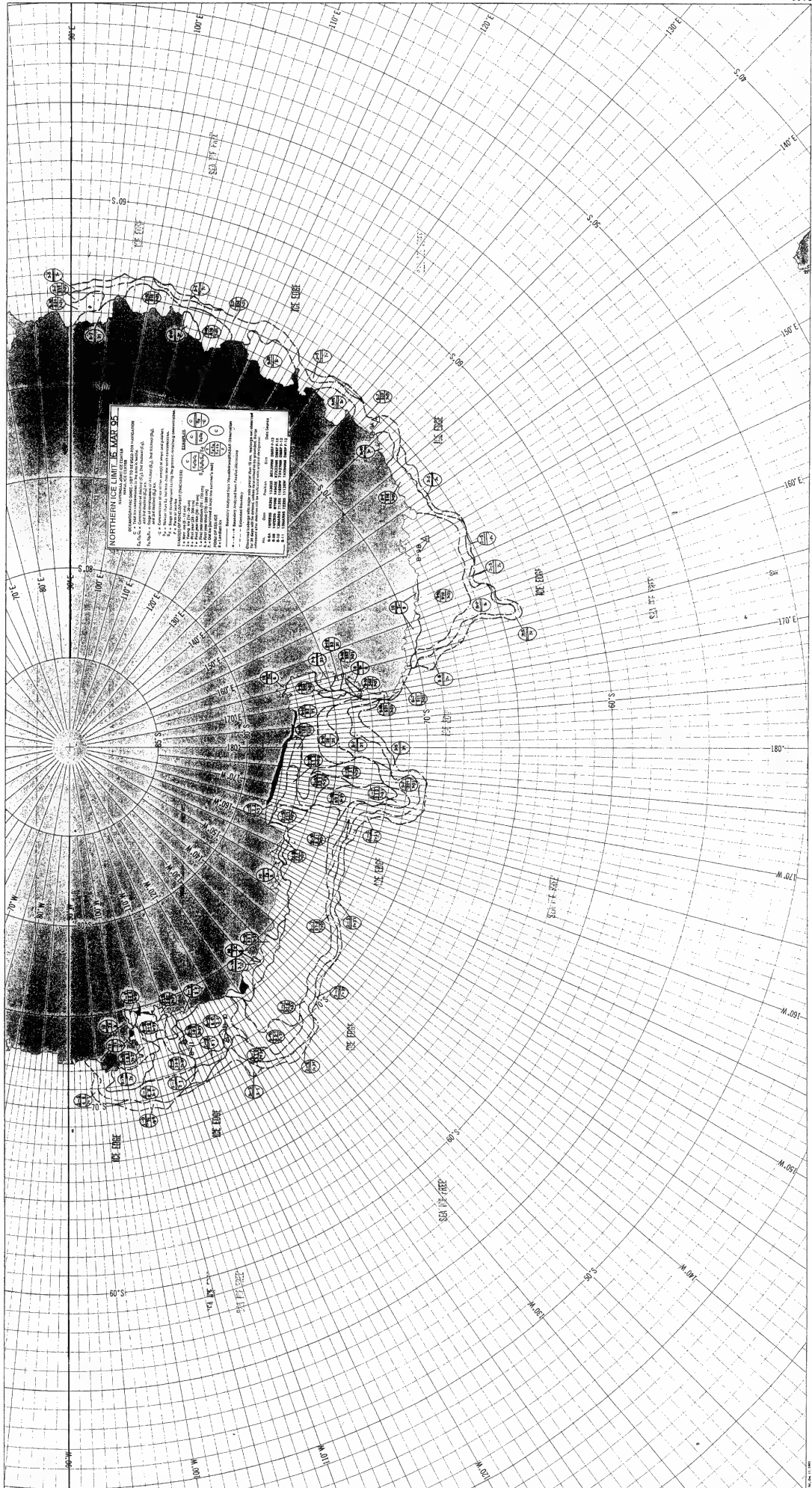
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60°	0°	60°
70°	0°	70°
80°	0°	80°
90°	0°	90°

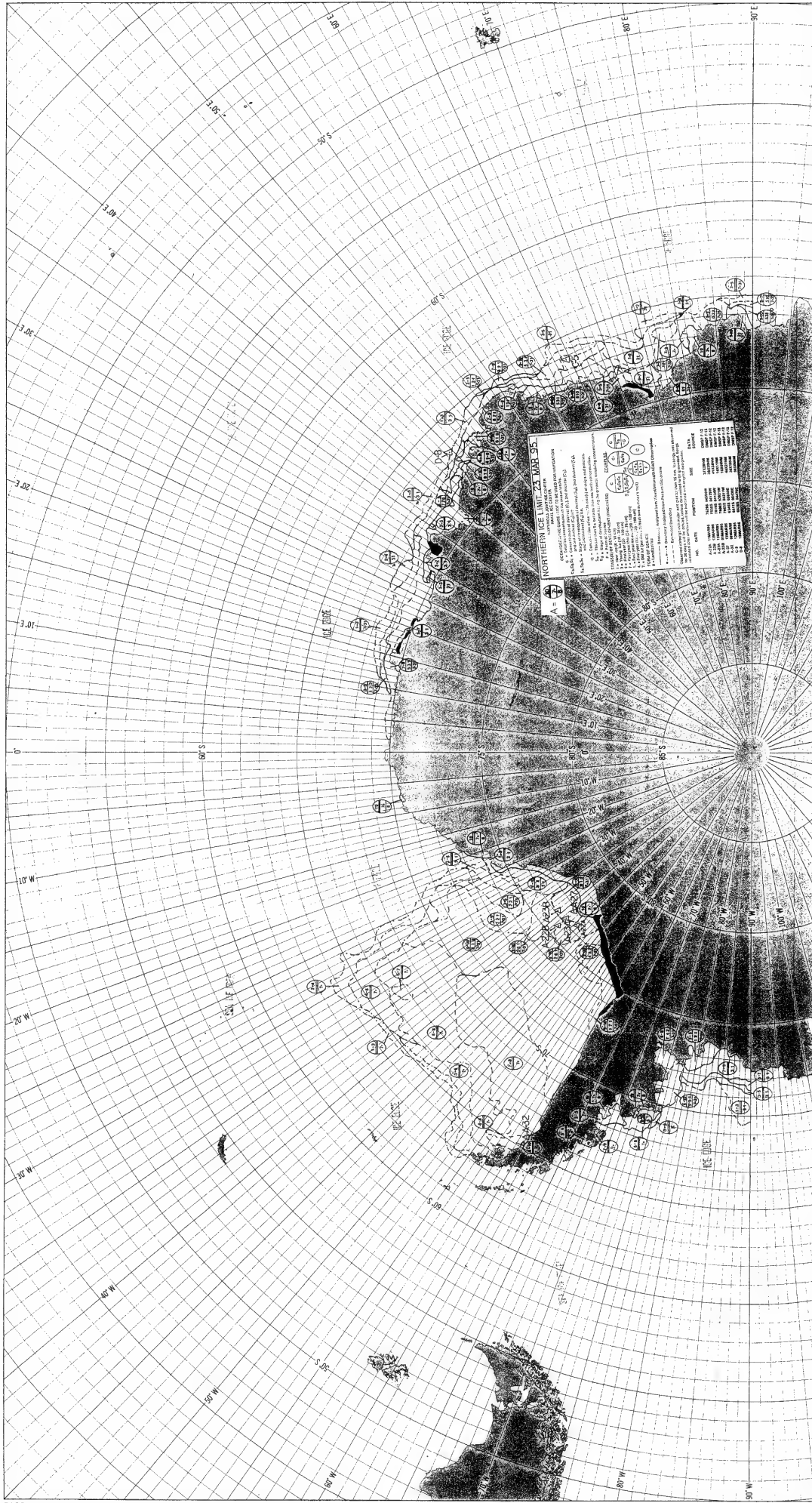
3. Other Data

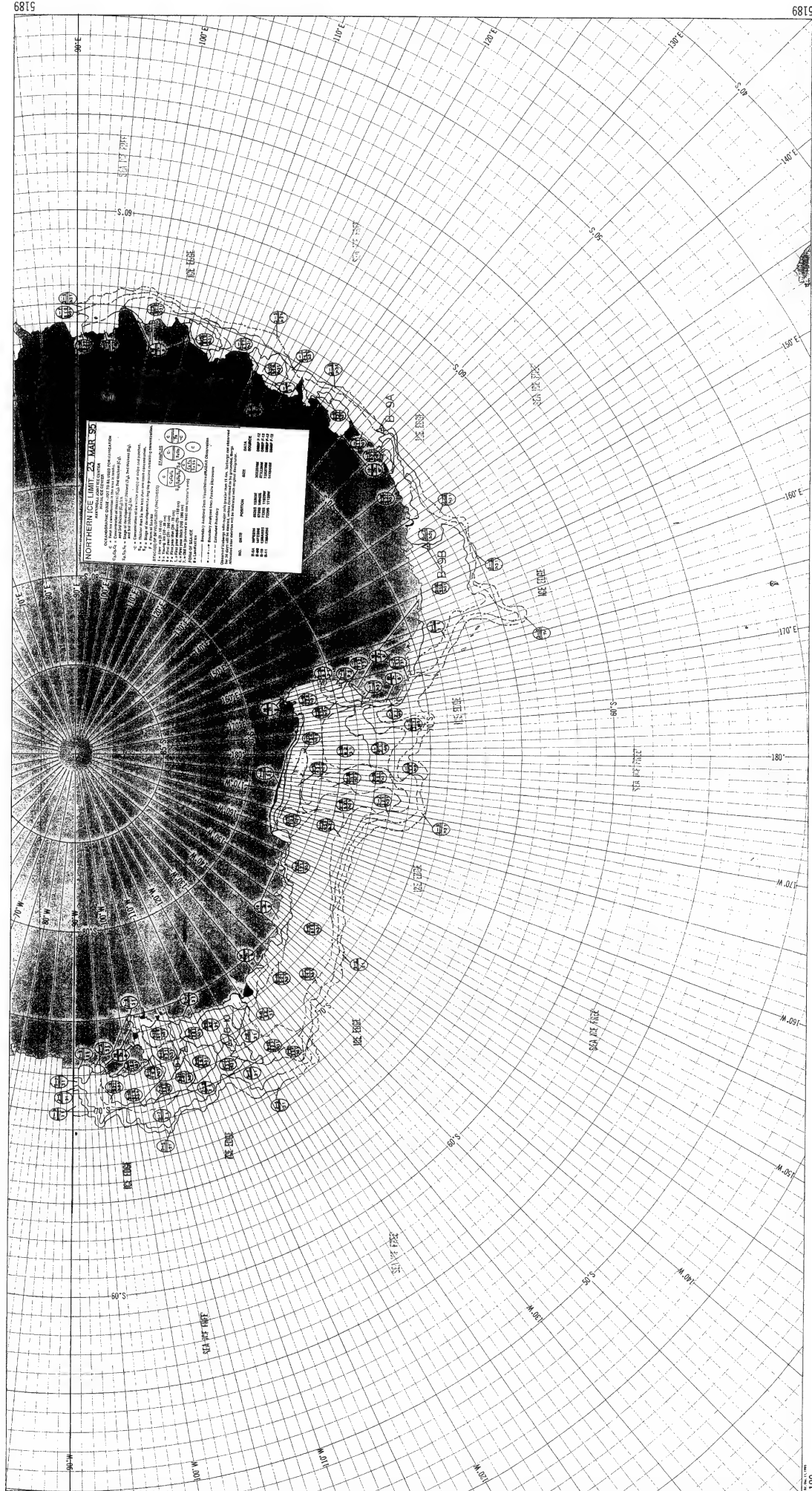
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90°	0°	90°



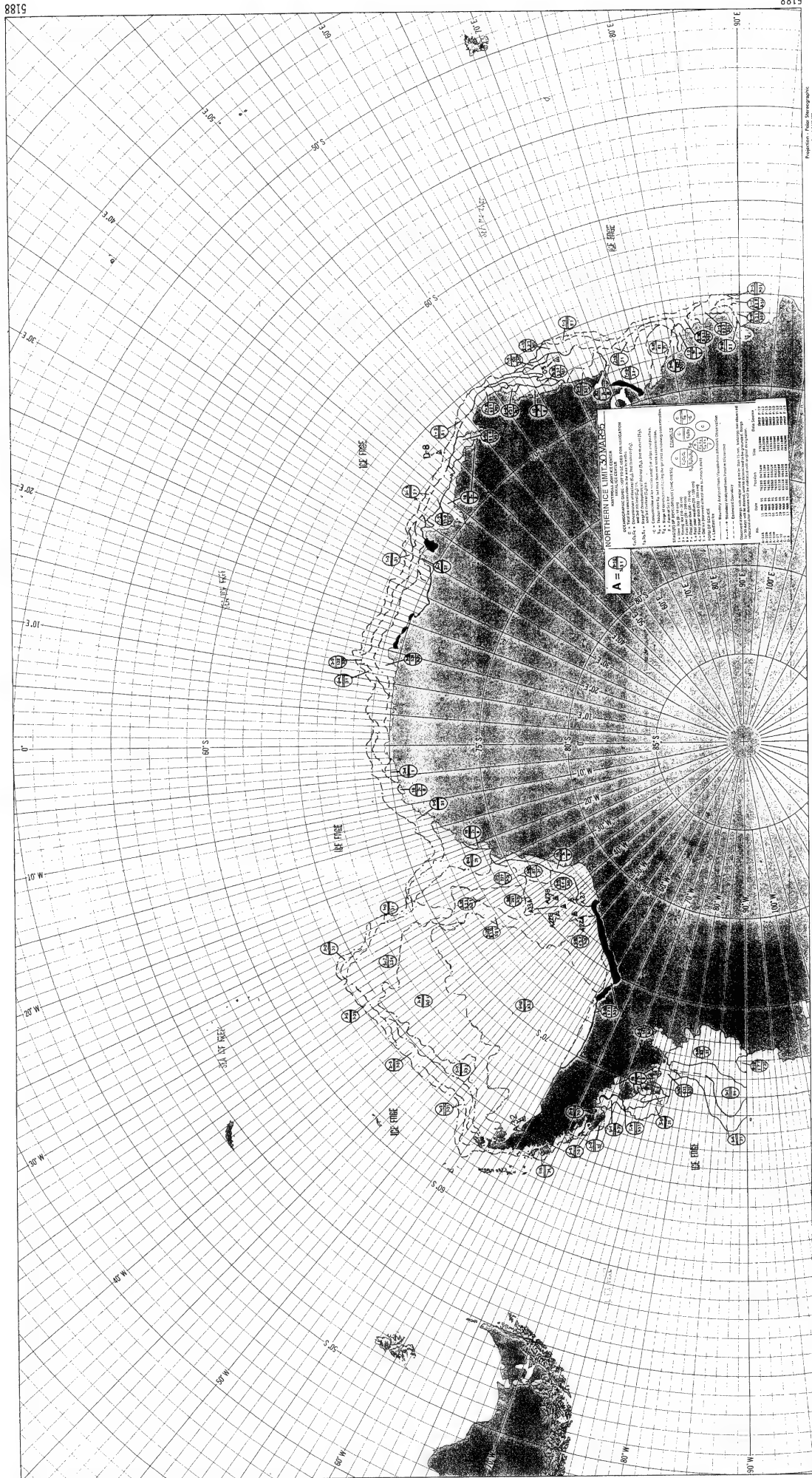




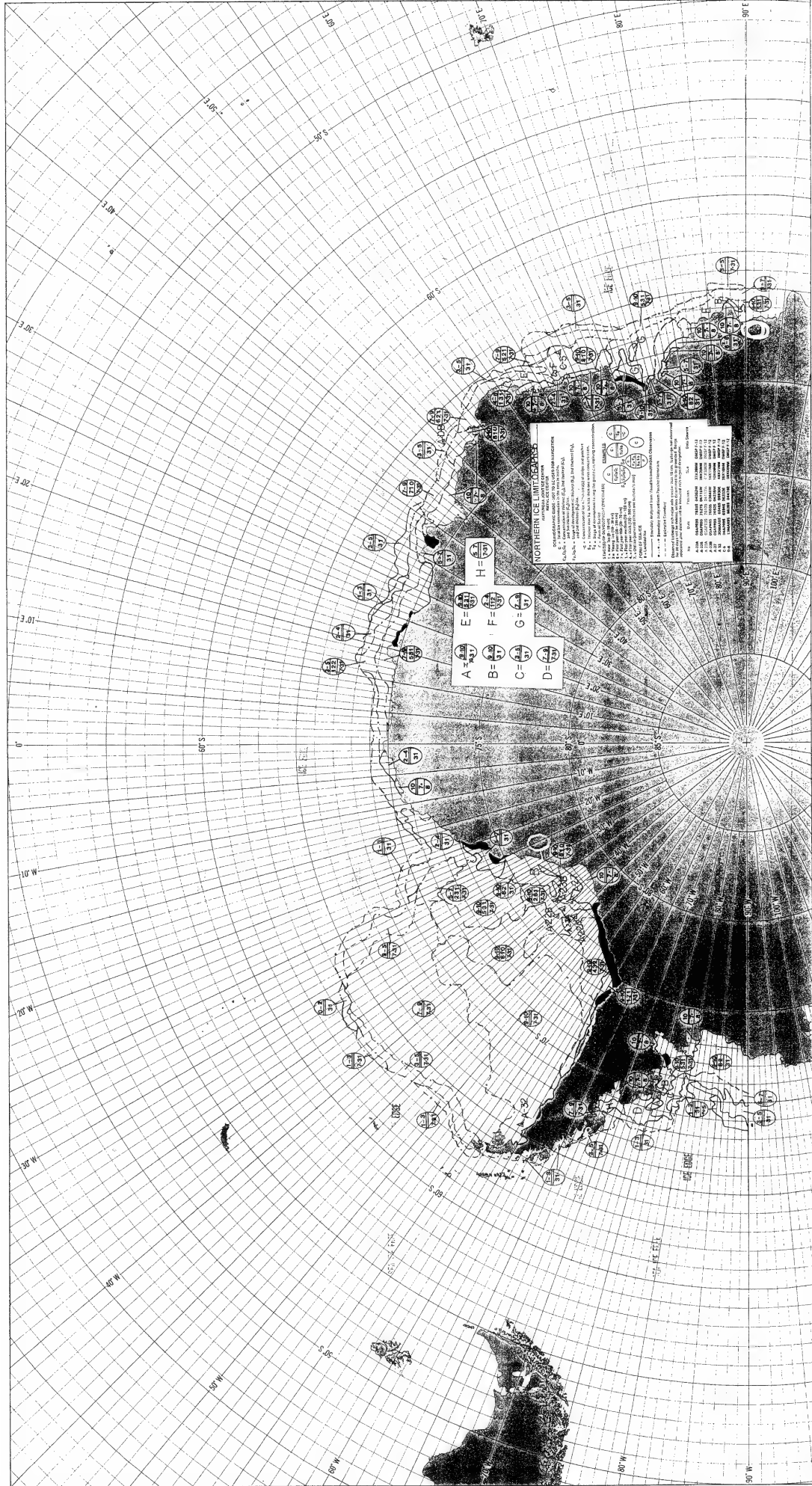




NORTHERN LIMIT 22 MAR 52
ANTARCTIC
1. The Antarctic continent is shown in black. The surrounding waters are shown in white. The map is based on the latest available data as of March 22, 1952.
2. The map shows the location of the following stations:
a. McMurdo Station
b. Palmer Station
c. Davis Station
d. Casey Station
e. Mawson Station
f. Scott Base
g. Amundsen-Scott Station
h. Vostok Station
i. Zhuravka Station
j. Mirny Station
k. Progress Station
l. Mirny Station
m. Progress Station
n. Vostok Station
o. Amundsen-Scott Station
p. Scott Base
q. Mawson Station
r. Casey Station
s. Davis Station
t. Palmer Station
u. McMurdo Station
v. The map also shows the location of the following ice shelves:
a. Ross Ice Shelf
b. Weddell Sea Ice Shelf
c. Filchner-Ronne Ice Shelf
d. East Antarctic Ice Shelf
e. West Antarctic Ice Shelf
f. The map also shows the location of the following ice mountains:
a. Mount Erebus
b. Mount Victoria
c. Mount Mawson
d. Mount Scott
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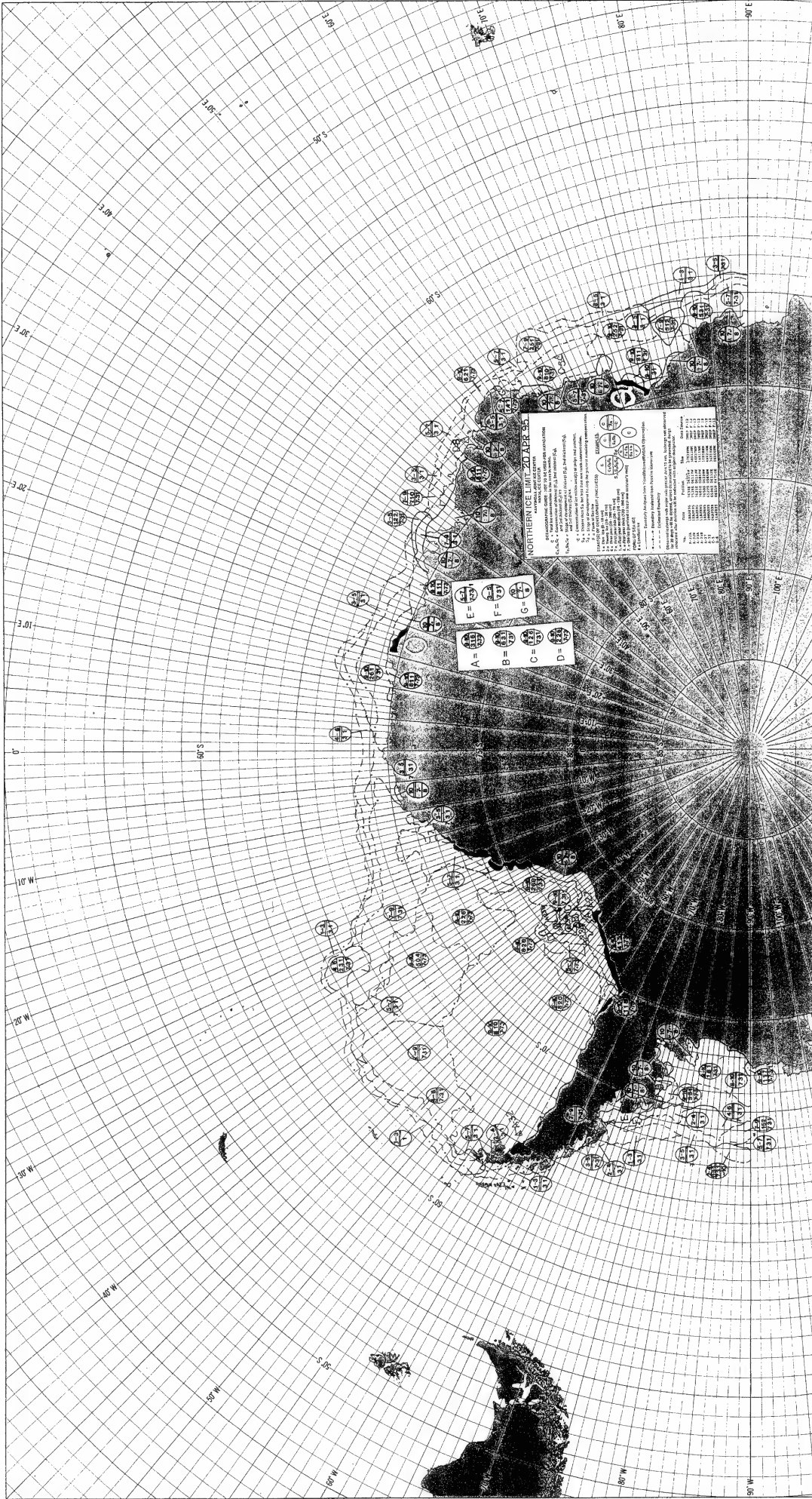




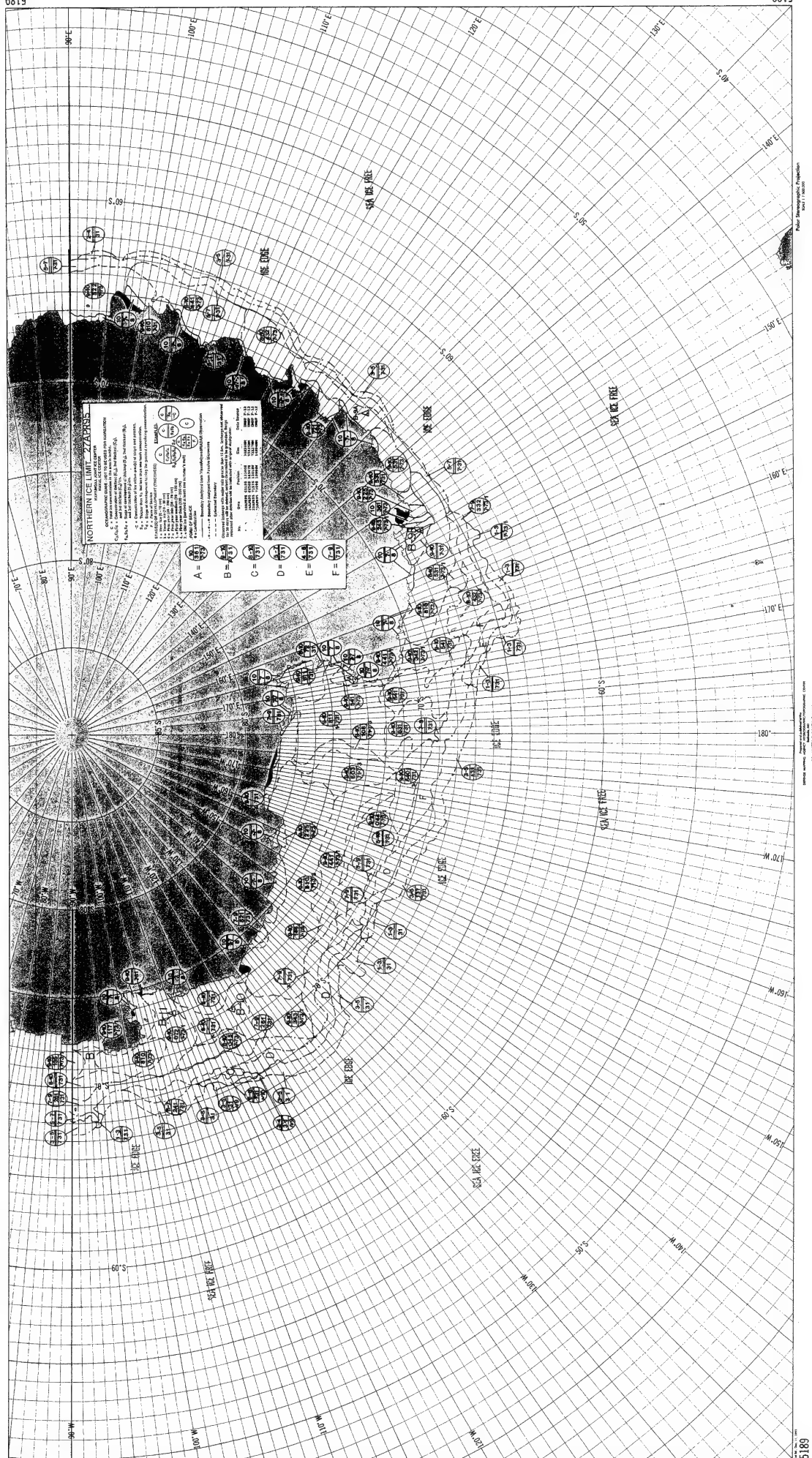


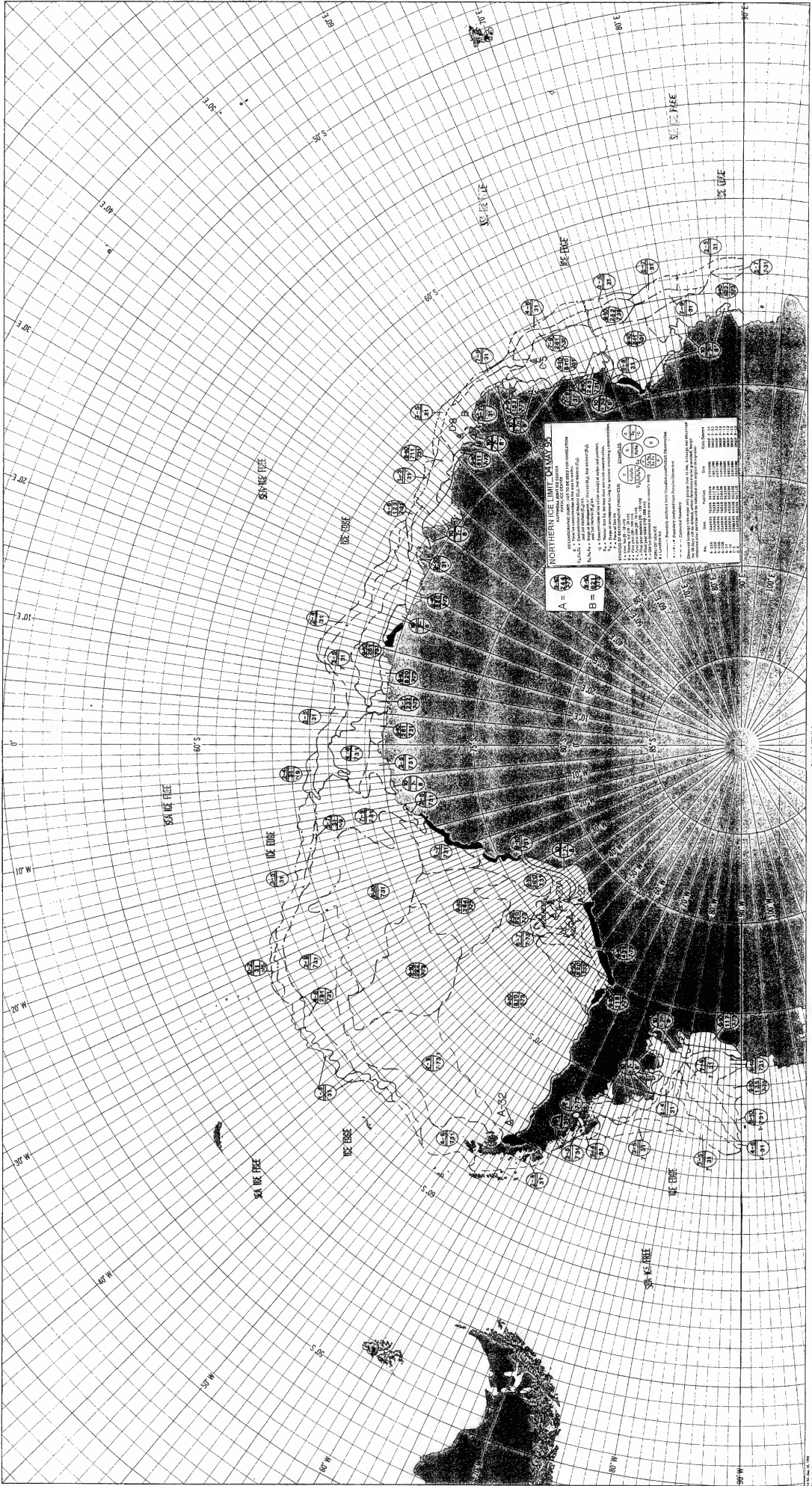


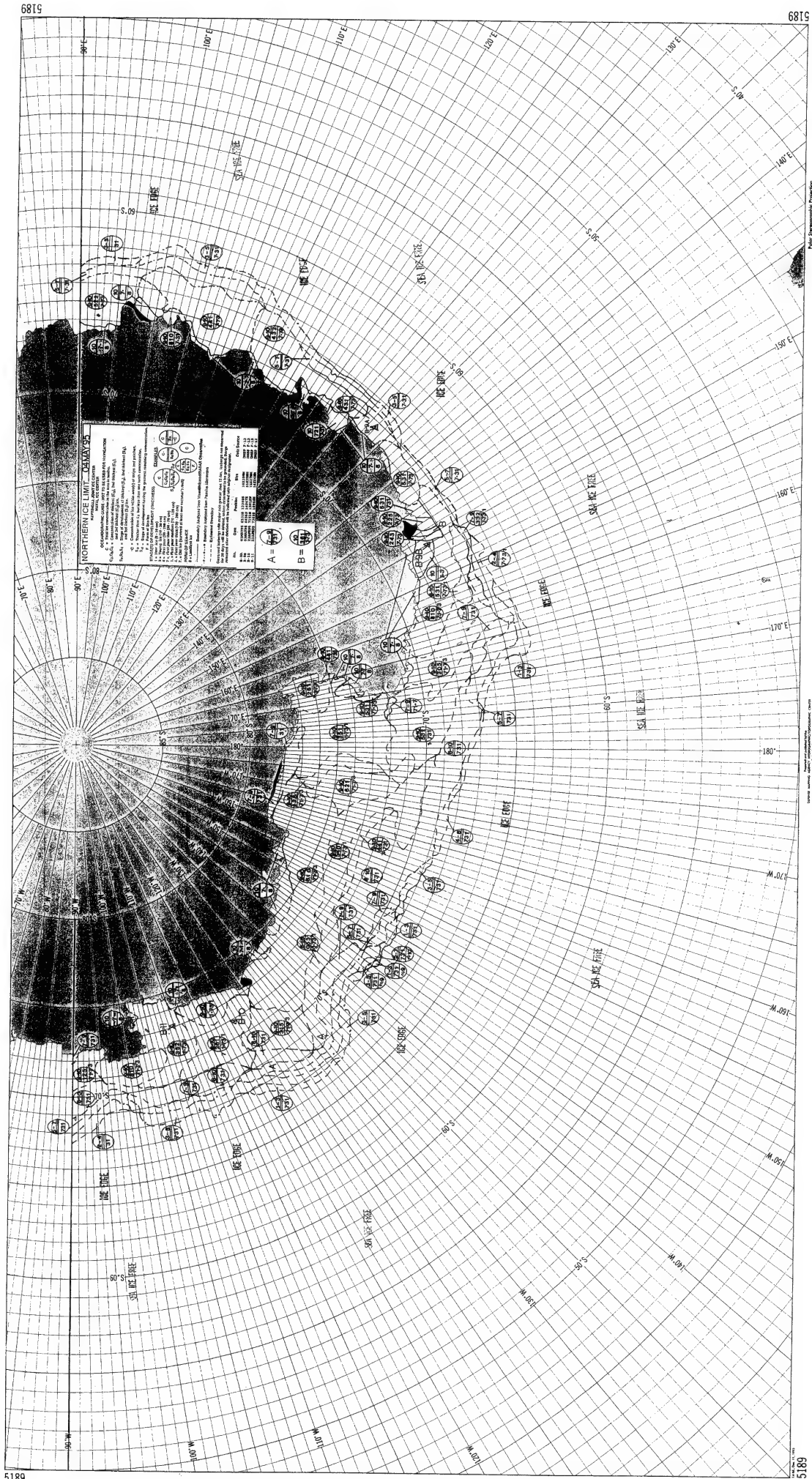


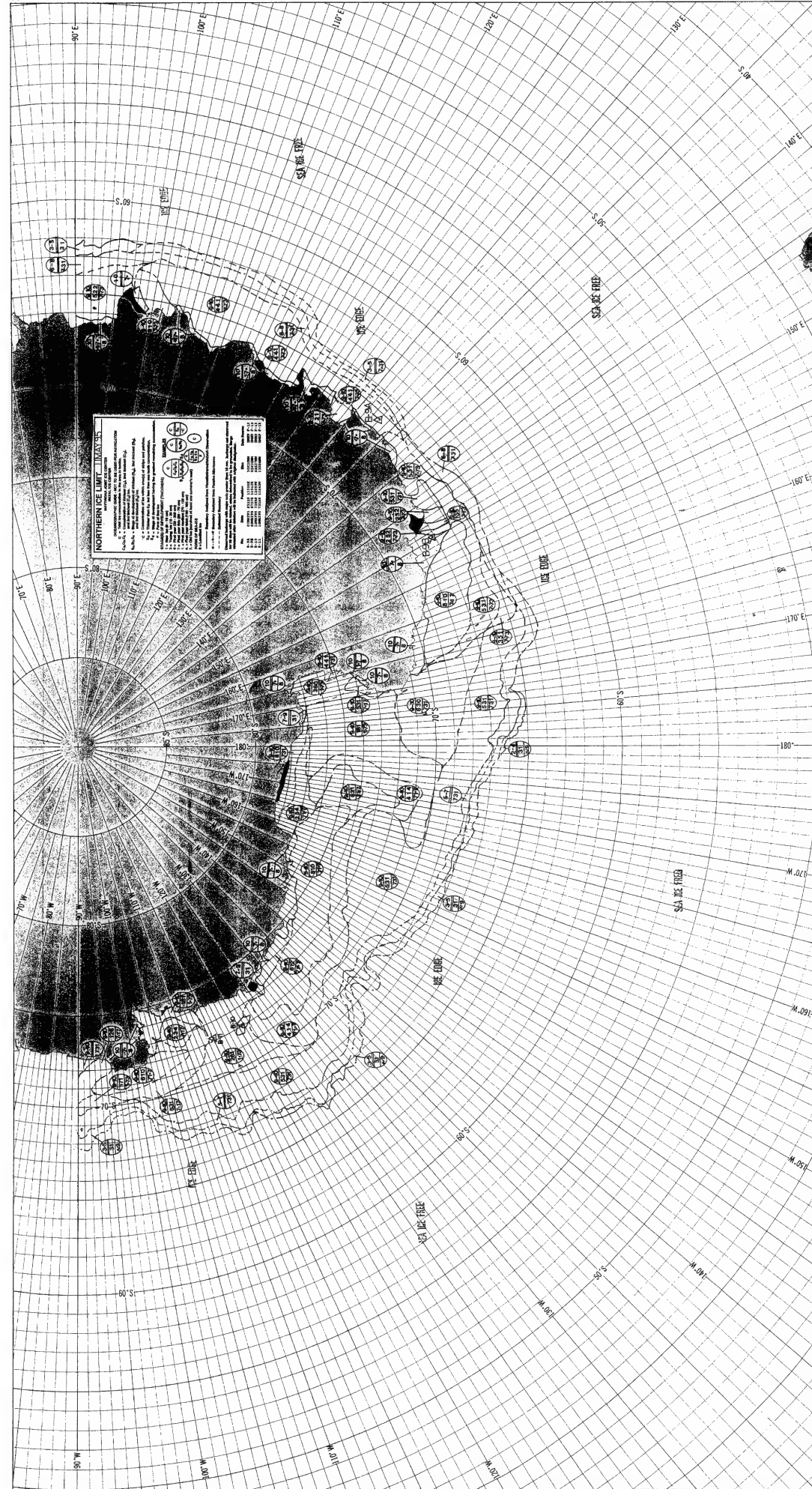




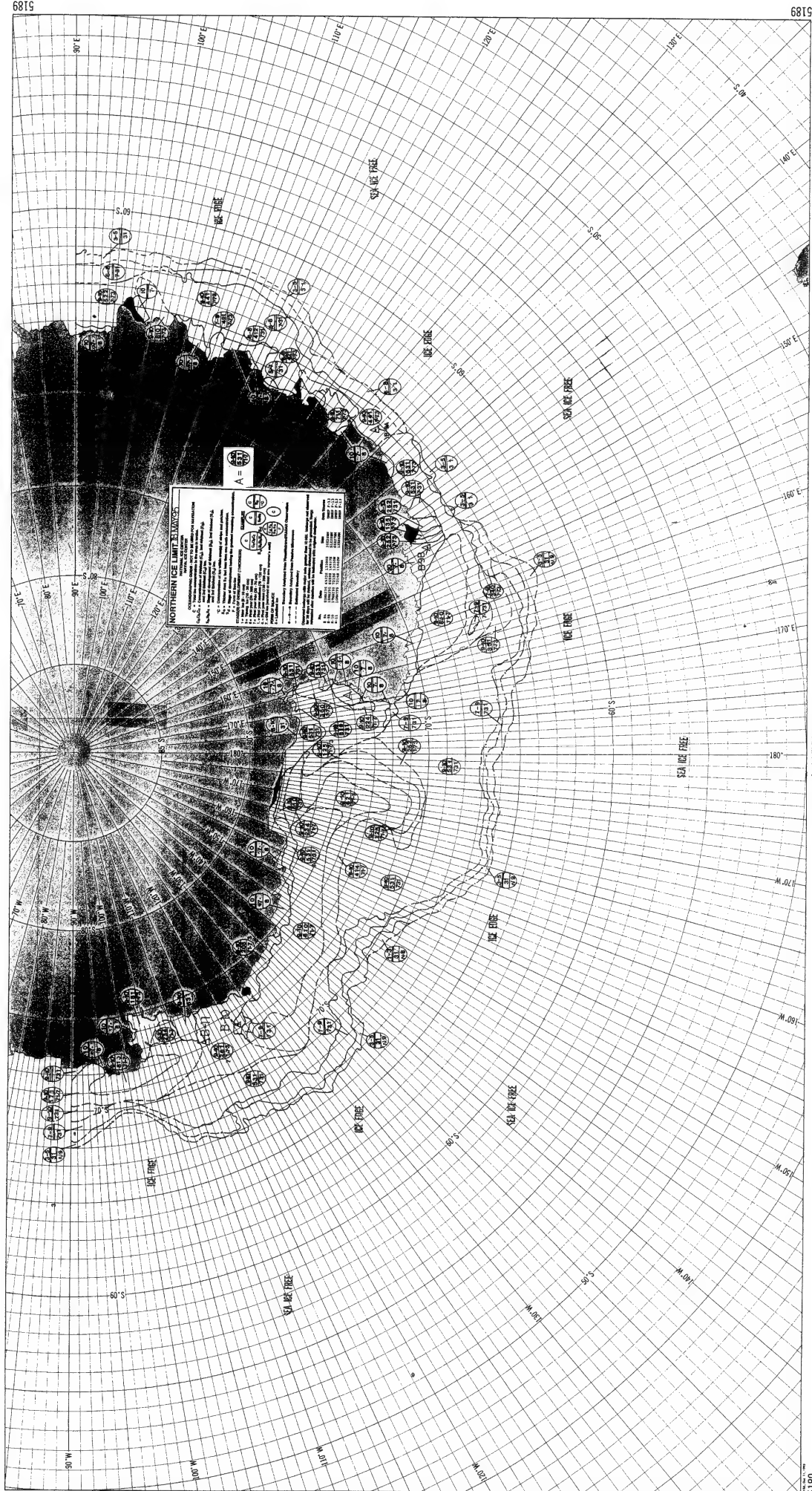










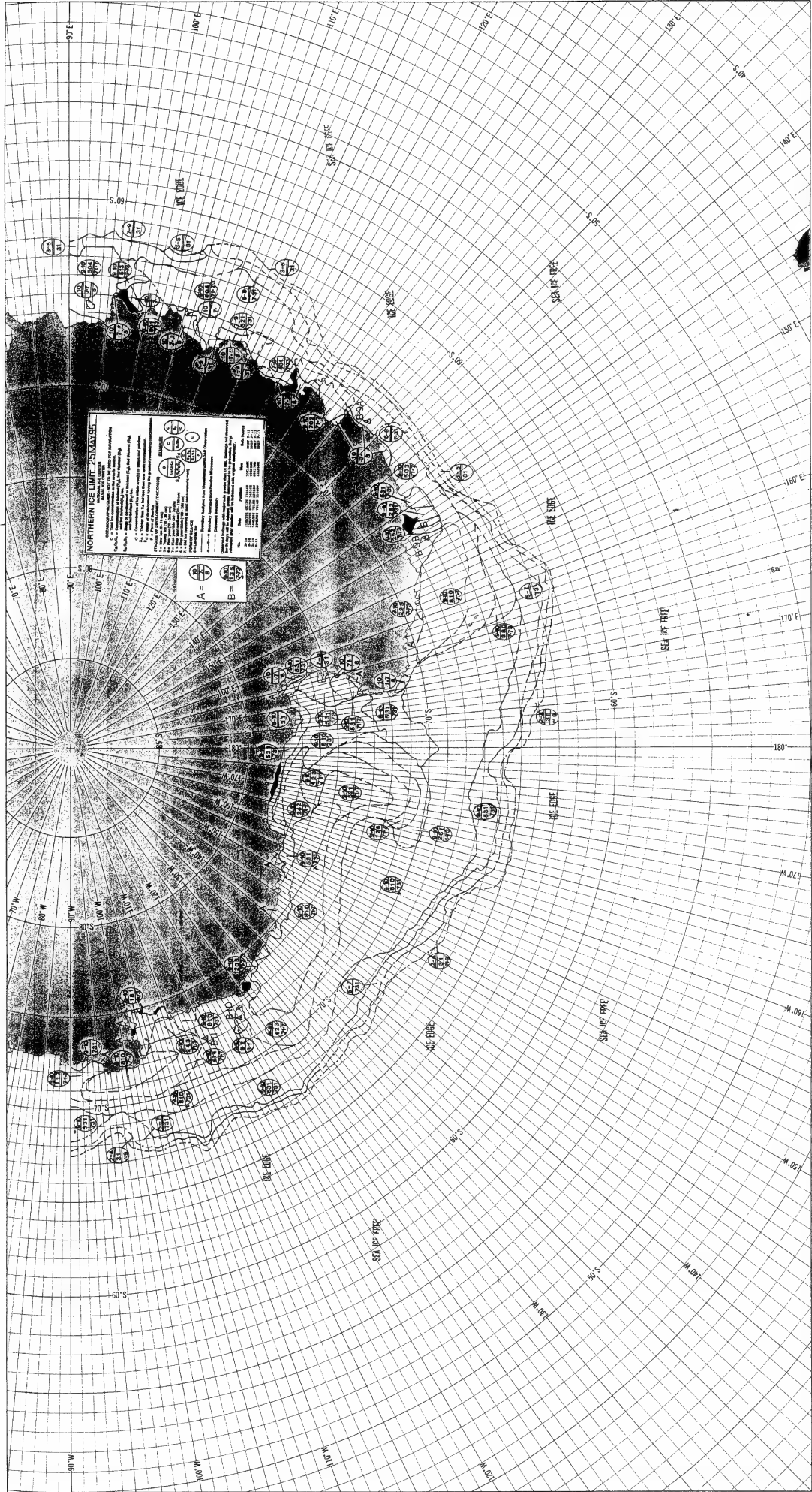


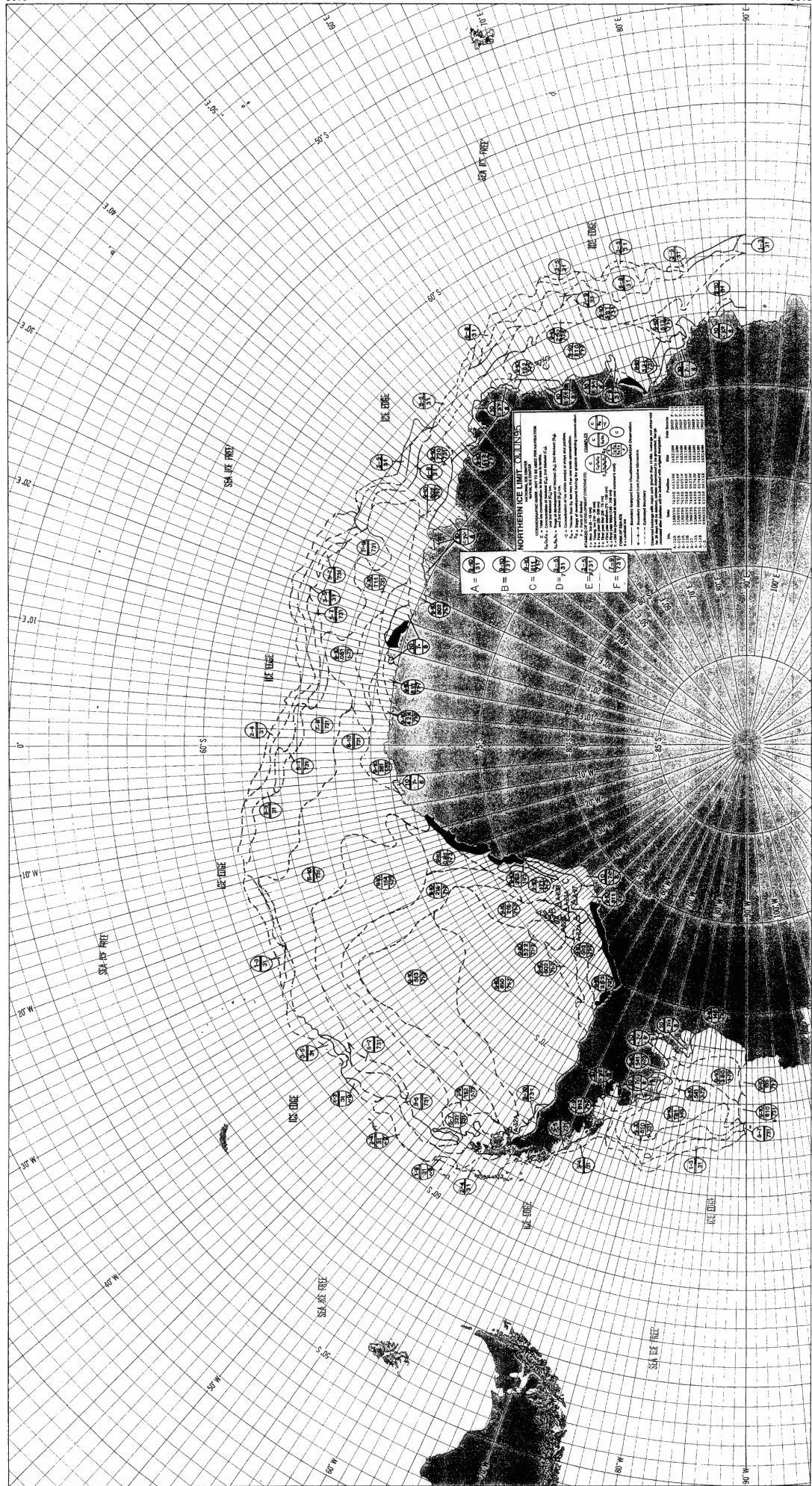
NORTHERN ICE LIMIT

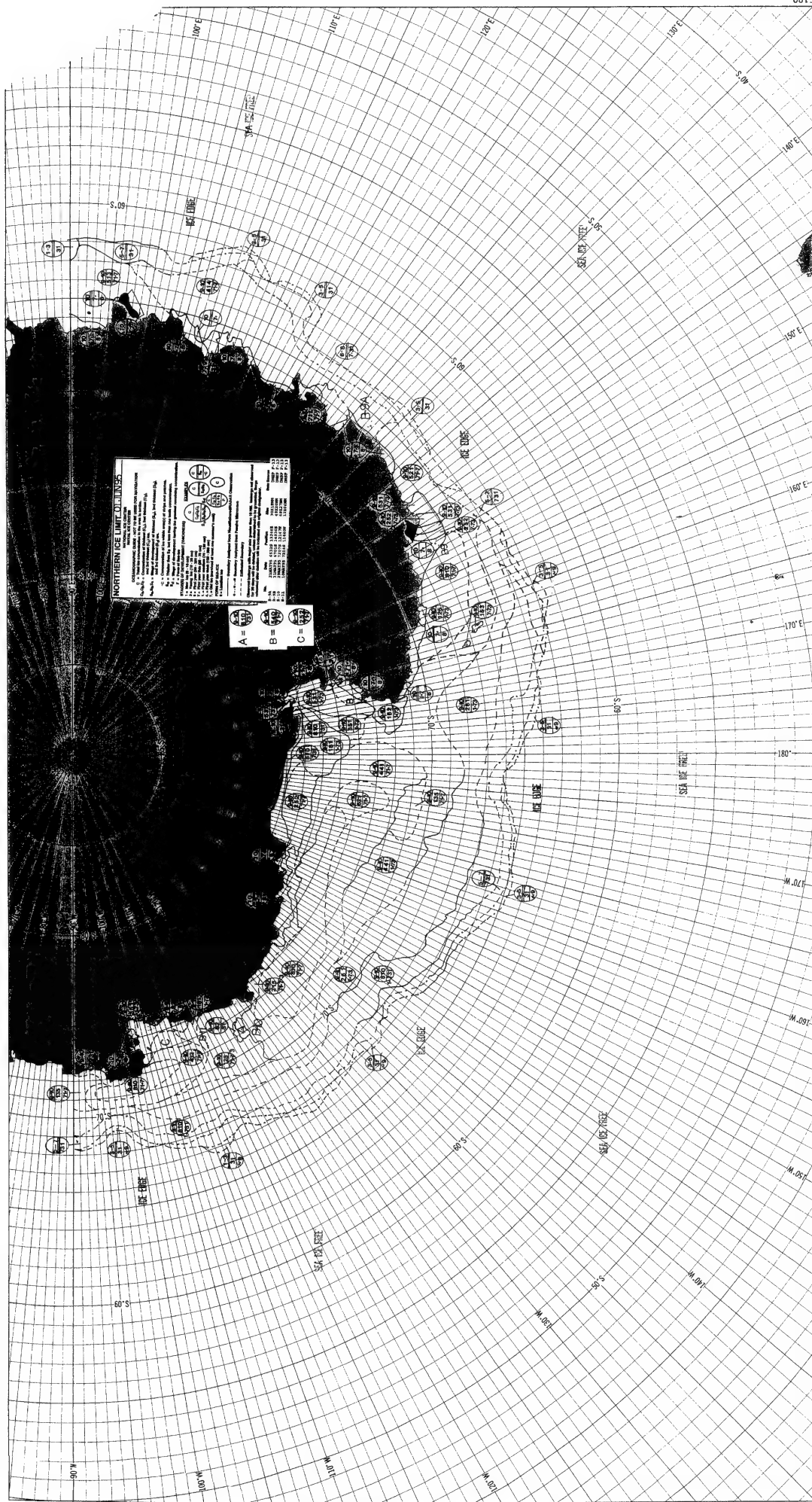
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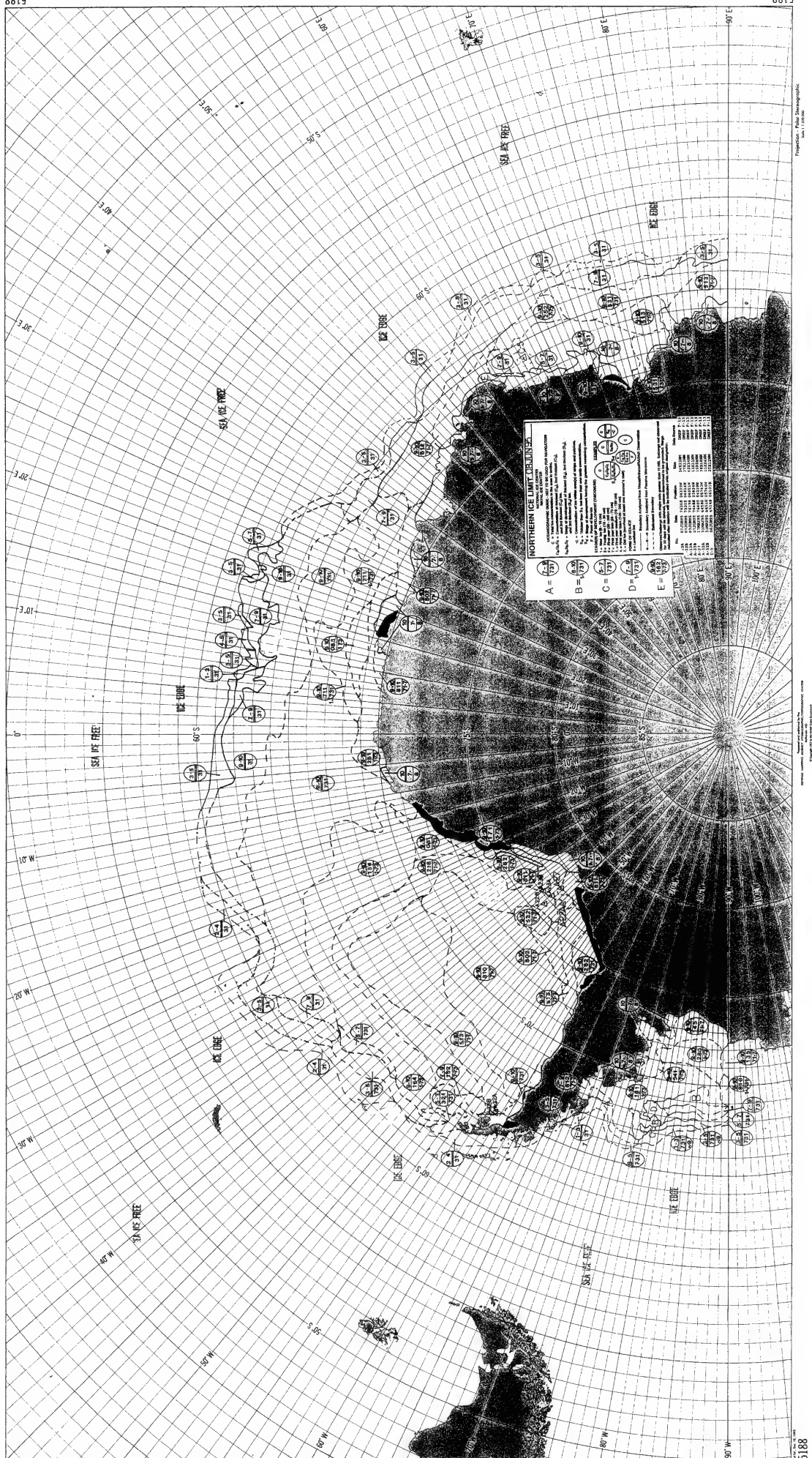
DATE	TIME	LOCATION	TEMPERATURE	WIND	SEA	ICE	REMARKS
1900	10.00	60°N 10°E	10.0	10.0	10.0	10.0	10.0
1900	11.00	60°N 11°E	11.0	11.0	11.0	11.0	11.0
1900	12.00	60°N 12°E	12.0	12.0	12.0	12.0	12.0
1900	13.00	60°N 13°E	13.0	13.0	13.0	13.0	13.0
1900	14.00	60°N 14°E	14.0	14.0	14.0	14.0	14.0
1900	15.00	60°N 15°E	15.0	15.0	15.0	15.0	15.0
1900	16.00	60°N 16°E	16.0	16.0	16.0	16.0	16.0
1900	17.00	60°N 17°E	17.0	17.0	17.0	17.0	17.0
1900	18.00	60°N 18°E	18.0	18.0	18.0	18.0	18.0
1900	19.00	60°N 19°E	19.0	19.0	19.0	19.0	19.0
1900	20.00	60°N 20°E	20.0	20.0	20.0	20.0	20.0
1900	21.00	60°N 21°E	21.0	21.0	21.0	21.0	21.0
1900	22.00	60°N 22°E	22.0	22.0	22.0	22.0	22.0
1900	23.00	60°N 23°E	23.0	23.0	23.0	23.0	23.0
1900	24.00	60°N 24°E	24.0	24.0	24.0	24.0	24.0
1900	25.00	60°N 25°E	25.0	25.0	25.0	25.0	25.0
1900	26.00	60°N 26°E	26.0	26.0	26.0	26.0	26.0
1900	27.00	60°N 27°E	27.0	27.0	27.0	27.0	27.0
1900	28.00	60°N 28°E	28.0	28.0	28.0	28.0	28.0
1900	29.00	60°N 29°E	29.0	29.0	29.0	29.0	29.0
1900	30.00	60°N 30°E	30.0	30.0	30.0	30.0	30.0
1900	31.00	60°N 31°E	31.0	31.0	31.0	31.0	31.0
1900	32.00	60°N 32°E	32.0	32.0	32.0	32.0	32.0
1900	33.00	60°N 33°E	33.0	33.0	33.0	33.0	33.0
1900	34.00	60°N 34°E	34.0	34.0	34.0	34.0	34.0
1900	35.00	60°N 35°E	35.0	35.0	35.0	35.0	35.0
1900	36.00	60°N 36°E	36.0	36.0	36.0	36.0	36.0
1900	37.00	60°N 37°E	37.0	37.0	37.0	37.0	37.0
1900	38.00	60°N 38°E	38.0	38.0	38.0	38.0	38.0
1900	39.00	60°N 39°E	39.0	39.0	39.0	39.0	39.0
1900	40.00	60°N 40°E	40.0	40.0	40.0	40.0	40.0
1900	41.00	60°N 41°E	41.0	41.0	41.0	41.0	41.0
1900	42.00	60°N 42°E	42.0	42.0	42.0	42.0	42.0
1900	43.00	60°N 43°E	43.0	43.0	43.0	43.0	43.0
1900	44.00	60°N 44°E	44.0	44.0	44.0	44.0	44.0
1900	45.00	60°N 45°E	45.0	45.0	45.0	45.0	45.0
1900	46.00	60°N 46°E	46.0	46.0	46.0	46.0	46.0
1900	47.00	60°N 47°E	47.0	47.0	47.0	47.0	47.0
1900	48.00	60°N 48°E	48.0	48.0	48.0	48.0	48.0
1900	49.00	60°N 49°E	49.0	49.0	49.0	49.0	49.0
1900	50.00	60°N 50°E	50.0	50.0	50.0	50.0	50.0
1900	51.00	60°N 51°E	51.0	51.0	51.0	51.0	51.0
1900	52.00	60°N 52°E	52.0	52.0	52.0	52.0	52.0
1900	53.00	60°N 53°E	53.0	53.0	53.0	53.0	53.0
1900	54.00	60°N 54°E	54.0	54.0	54.0	54.0	54.0
1900	55.00	60°N 55°E	55.0	55.0	55.0	55.0	55.0
1900	56.00	60°N 56°E	56.0	56.0	56.0	56.0	56.0
1900	57.00	60°N 57°E	57.0	57.0	57.0	57.0	57.0
1900	58.00	60°N 58°E	58.0	58.0	58.0	58.0	58.0
1900	59.00	60°N 59°E	59.0	59.0	59.0	59.0	59.0
1900	60.00	60°N 60°E	60.0	60.0	60.0	60.0	60.0



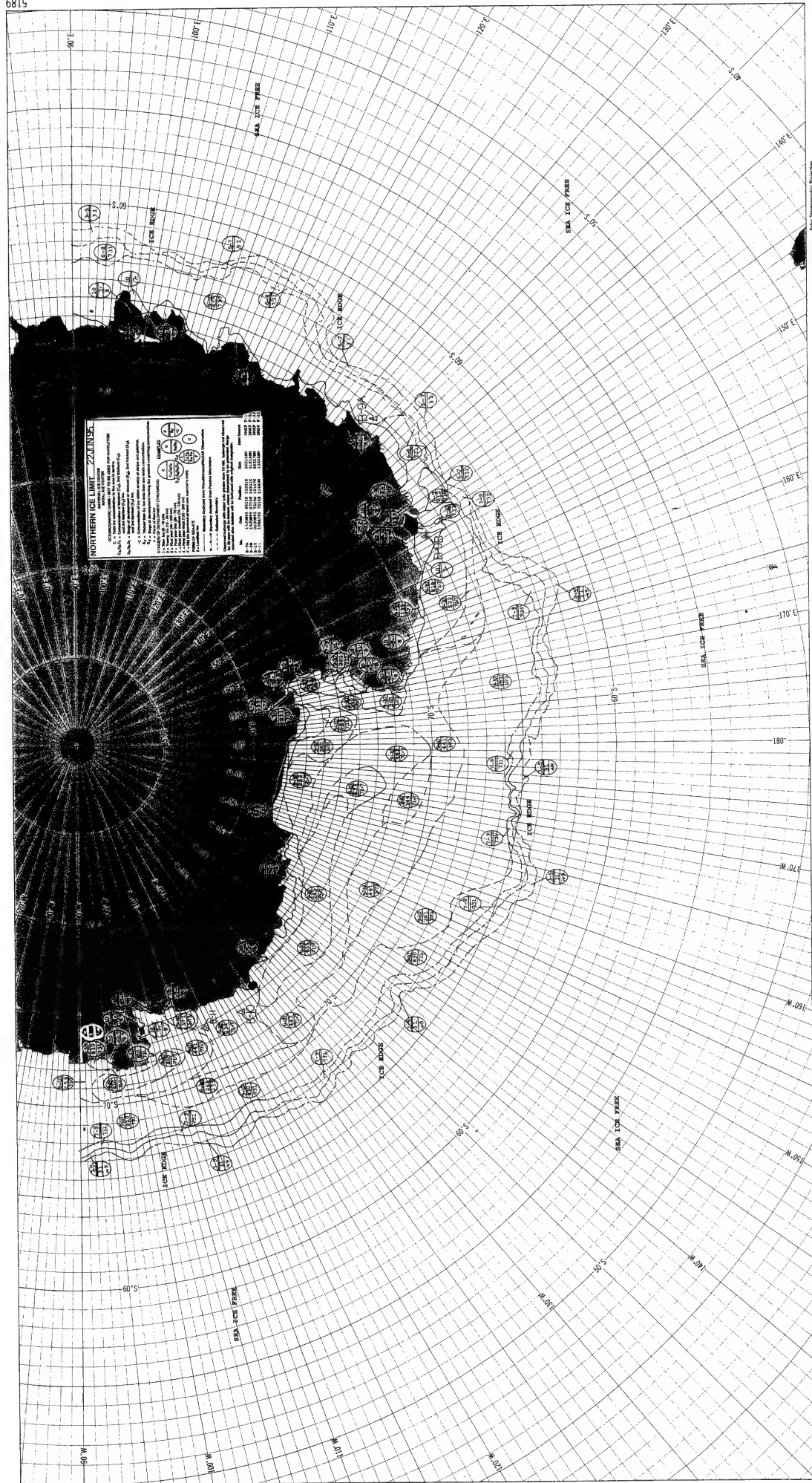








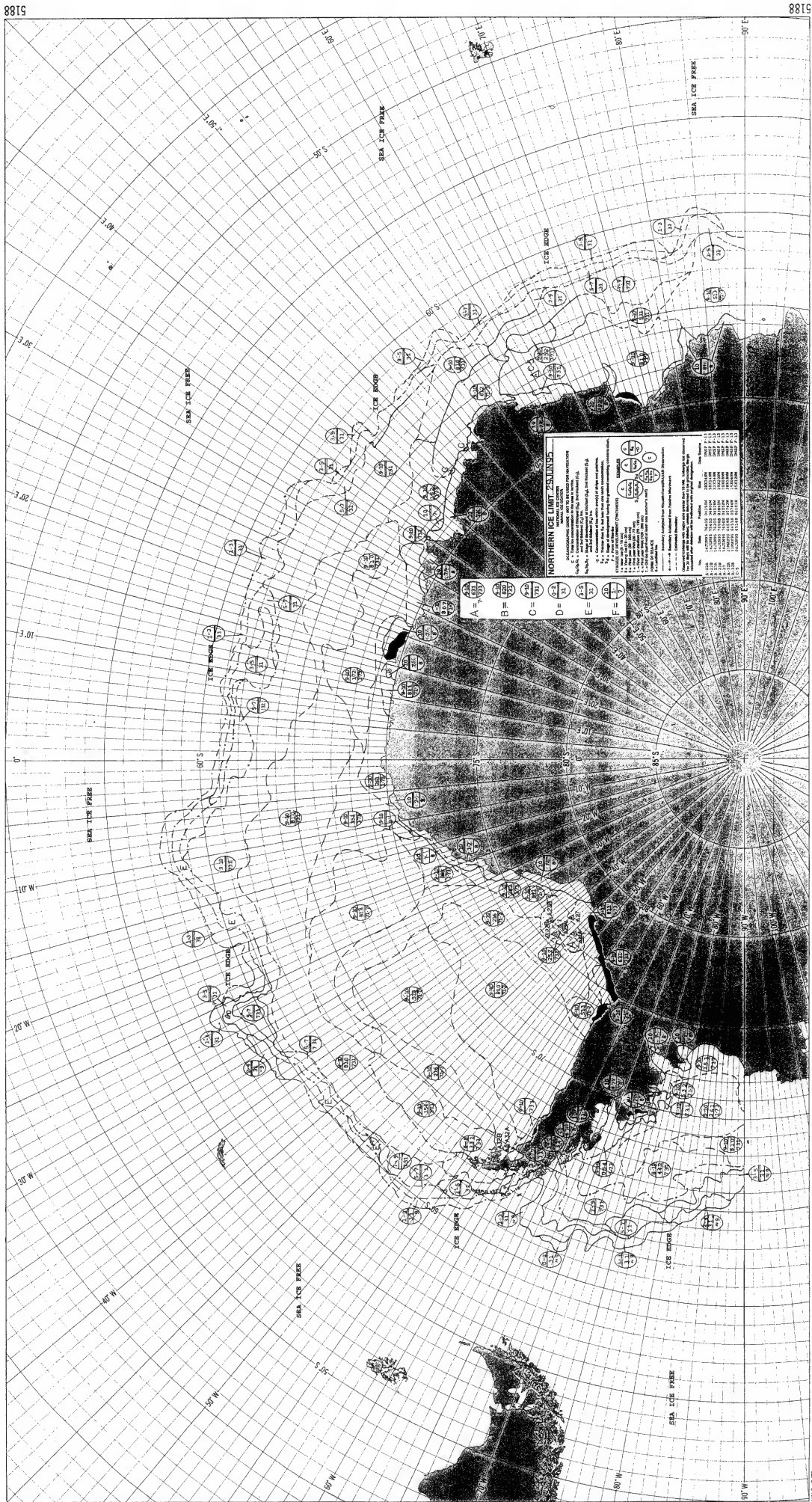




NORTHERN ICE LIMIT - 22 JUNE
CONTINUED FROM 6815
This map shows the Northern Ice Limit (NIL) for 22 June, based on data from the International Geophysical Year (IGY) 1957-58. The NIL is defined as the limit of the ice which is expected to melt by 1 July. The map is based on data from the International Geophysical Year (IGY) 1957-58, and is a composite of data from many different sources. The map is based on data from the International Geophysical Year (IGY) 1957-58, and is a composite of data from many different sources. The map is based on data from the International Geophysical Year (IGY) 1957-58, and is a composite of data from many different sources.

Scale: 1:100,000
Projection: Mercator

Source: International Geophysical Year (IGY) 1957-58
Data: International Geophysical Year (IGY) 1957-58



NORTHERN ICE LIMIT 25 JULY 1952

ICE LIMITS ARE BASED ON THE FOLLOWING DATA:

1. U.S. NAVY AIRCRAFT OBSERVATIONS (1947-1951)

2. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1947-1951)

3. U.S. NAVY SUBMARINE OBSERVATIONS (1947-1951)

4. U.S. NAVY HELICOPTER OBSERVATIONS (1947-1951)

5. U.S. NAVY BALLOON OBSERVATIONS (1947-1951)

6. U.S. NAVY ROCKET OBSERVATIONS (1947-1951)

7. U.S. NAVY AIRCRAFT OBSERVATIONS (1952)

8. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1952)

9. U.S. NAVY SUBMARINE OBSERVATIONS (1952)

10. U.S. NAVY HELICOPTER OBSERVATIONS (1952)

11. U.S. NAVY BALLOON OBSERVATIONS (1952)

12. U.S. NAVY ROCKET OBSERVATIONS (1952)

13. U.S. NAVY AIRCRAFT OBSERVATIONS (1953)

14. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1953)

15. U.S. NAVY SUBMARINE OBSERVATIONS (1953)

16. U.S. NAVY HELICOPTER OBSERVATIONS (1953)

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18. U.S. NAVY ROCKET OBSERVATIONS (1953)

19. U.S. NAVY AIRCRAFT OBSERVATIONS (1954)

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218. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1987)

219. U.S. NAVY SUBMARINE OBSERVATIONS (1987)

220. U.S. NAVY HELICOPTER OBSERVATIONS (1987)

221. U.S. NAVY BALLOON OBSERVATIONS (1987)

222. U.S. NAVY ROCKET OBSERVATIONS (1987)

223. U.S. NAVY AIRCRAFT OBSERVATIONS (1988)

224. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1988)

225. U.S. NAVY SUBMARINE OBSERVATIONS (1988)

226. U.S. NAVY HELICOPTER OBSERVATIONS (1988)

227. U.S. NAVY BALLOON OBSERVATIONS (1988)

228. U.S. NAVY ROCKET OBSERVATIONS (1988)

229. U.S. NAVY AIRCRAFT OBSERVATIONS (1989)

230. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1989)

231. U.S. NAVY SUBMARINE OBSERVATIONS (1989)

232. U.S. NAVY HELICOPTER OBSERVATIONS (1989)

233. U.S. NAVY BALLOON OBSERVATIONS (1989)

234. U.S. NAVY ROCKET OBSERVATIONS (1989)

235. U.S. NAVY AIRCRAFT OBSERVATIONS (1990)

236. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1990)

237. U.S. NAVY SUBMARINE OBSERVATIONS (1990)

238. U.S. NAVY HELICOPTER OBSERVATIONS (1990)

239. U.S. NAVY BALLOON OBSERVATIONS (1990)

240. U.S. NAVY ROCKET OBSERVATIONS (1990)

241. U.S. NAVY AIRCRAFT OBSERVATIONS (1991)

242. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1991)

243. U.S. NAVY SUBMARINE OBSERVATIONS (1991)

244. U.S. NAVY HELICOPTER OBSERVATIONS (1991)

245. U.S. NAVY BALLOON OBSERVATIONS (1991)

246. U.S. NAVY ROCKET OBSERVATIONS (1991)

247. U.S. NAVY AIRCRAFT OBSERVATIONS (1992)

248. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1992)

249. U.S. NAVY SUBMARINE OBSERVATIONS (1992)

250. U.S. NAVY HELICOPTER OBSERVATIONS (1992)

251. U.S. NAVY BALLOON OBSERVATIONS (1992)

252. U.S. NAVY ROCKET OBSERVATIONS (1992)

253. U.S. NAVY AIRCRAFT OBSERVATIONS (1993)

254. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1993)

255. U.S. NAVY SUBMARINE OBSERVATIONS (1993)

256. U.S. NAVY HELICOPTER OBSERVATIONS (1993)

257. U.S. NAVY BALLOON OBSERVATIONS (1993)

258. U.S. NAVY ROCKET OBSERVATIONS (1993)

259. U.S. NAVY AIRCRAFT OBSERVATIONS (1994)

260. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1994)

261. U.S. NAVY SUBMARINE OBSERVATIONS (1994)

262. U.S. NAVY HELICOPTER OBSERVATIONS (1994)

263. U.S. NAVY BALLOON OBSERVATIONS (1994)

264. U.S. NAVY ROCKET OBSERVATIONS (1994)

265. U.S. NAVY AIRCRAFT OBSERVATIONS (1995)

266. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1995)

267. U.S. NAVY SUBMARINE OBSERVATIONS (1995)

268. U.S. NAVY HELICOPTER OBSERVATIONS (1995)

269. U.S. NAVY BALLOON OBSERVATIONS (1995)

270. U.S. NAVY ROCKET OBSERVATIONS (1995)

271. U.S. NAVY AIRCRAFT OBSERVATIONS (1996)

272. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1996)

273. U.S. NAVY SUBMARINE OBSERVATIONS (1996)

274. U.S. NAVY HELICOPTER OBSERVATIONS (1996)

275. U.S. NAVY BALLOON OBSERVATIONS (1996)

276. U.S. NAVY ROCKET OBSERVATIONS (1996)

277. U.S. NAVY AIRCRAFT OBSERVATIONS (1997)

278. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1997)

279. U.S. NAVY SUBMARINE OBSERVATIONS (1997)

280. U.S. NAVY HELICOPTER OBSERVATIONS (1997)

281. U.S. NAVY BALLOON OBSERVATIONS (1997)

282. U.S. NAVY ROCKET OBSERVATIONS (1997)

283. U.S. NAVY AIRCRAFT OBSERVATIONS (1998)

284. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1998)

285. U.S. NAVY SUBMARINE OBSERVATIONS (1998)

286. U.S. NAVY HELICOPTER OBSERVATIONS (1998)

287. U.S. NAVY BALLOON OBSERVATIONS (1998)

288. U.S. NAVY ROCKET OBSERVATIONS (1998)

289. U.S. NAVY AIRCRAFT OBSERVATIONS (1999)

290. U.S. NAVY SURFACE VESSEL OBSERVATIONS (1999)

291. U.S. NAVY SUBMARINE OBSERVATIONS (1999)

292. U.S. NAVY HELICOPTER OBSERVATIONS (1999)

293. U.S. NAVY BALLOON OBSERVATIONS (1999)

294. U.S. NAVY ROCKET OBSERVATIONS (1999)

295. U.S. NAVY AIRCRAFT OBSERVATIONS (2000)

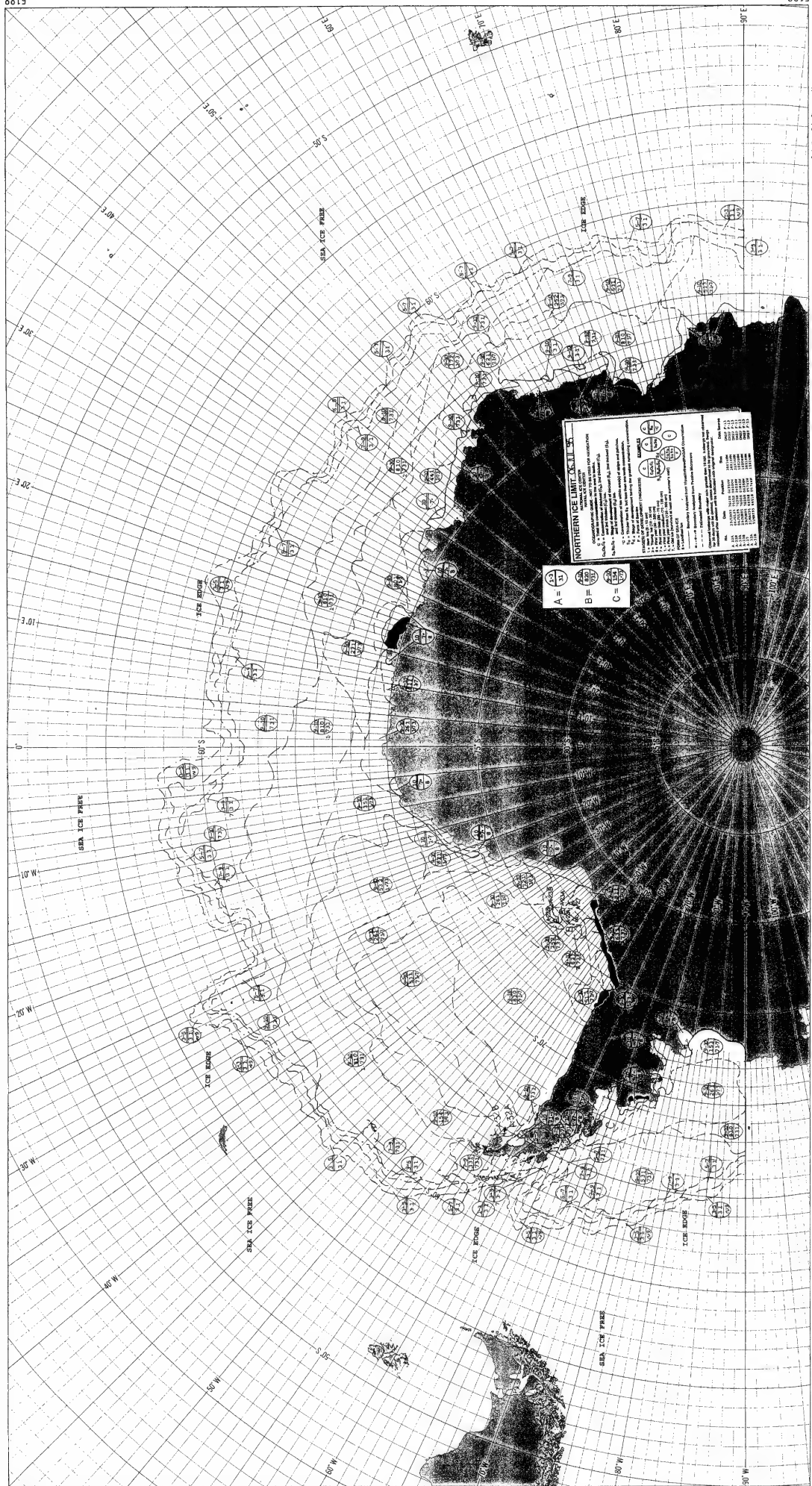
296. U.S. NAVY SURFACE VESSEL OBSERVATIONS (2000)

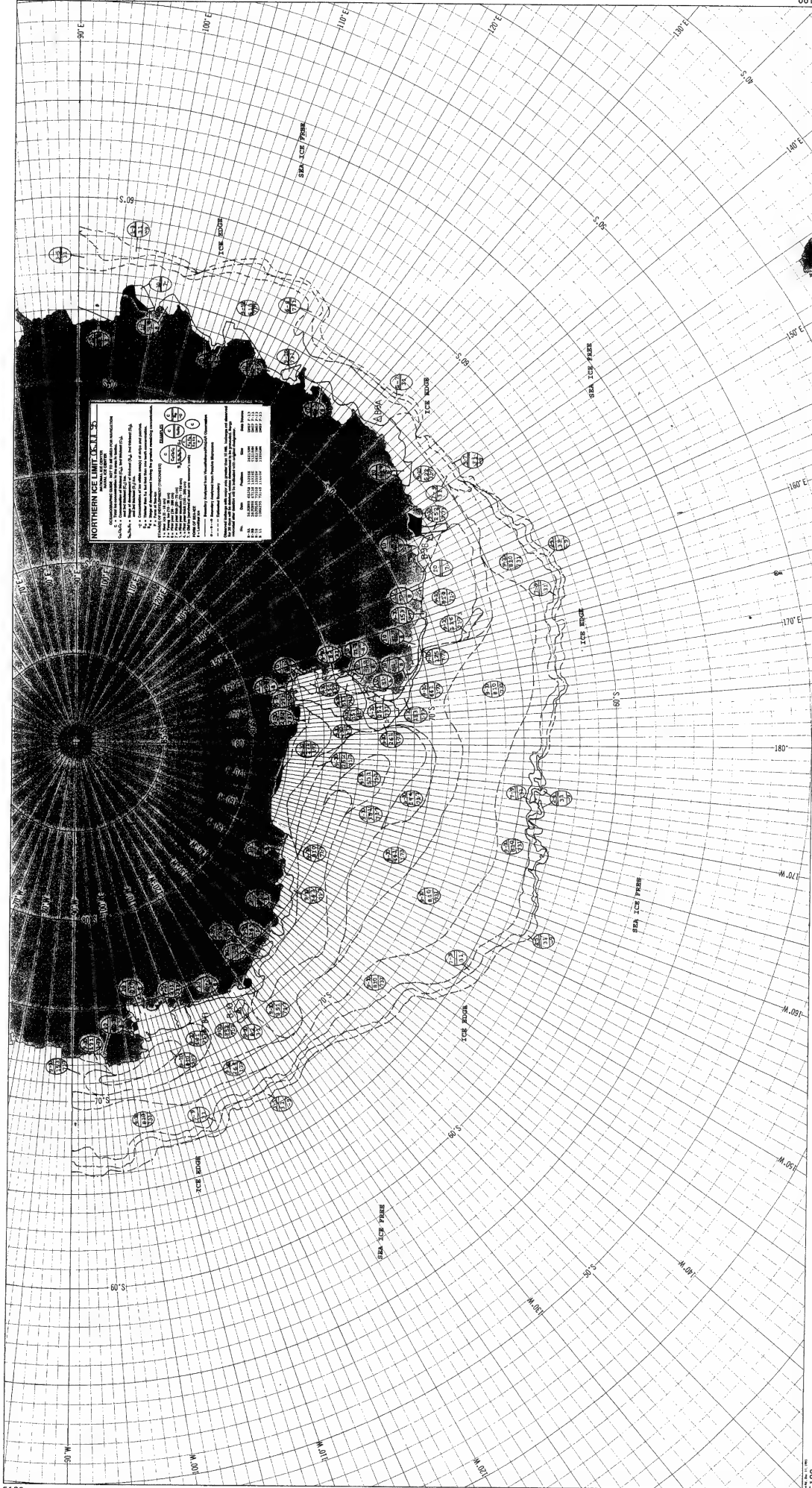
297. U.S. NAVY SUBMARINE OBSERVATIONS (2000)

298. U.S. NAVY HELICOPTER OBSERVATIONS (2000)

299. U.S. NAVY BALLOON OBSERVATIONS (2000)

300. U.S. NAVY ROCKET OBSERVATIONS (2000)





NORTHERN ICE LIMIT LIST 3

1. **Symbol** - A circle with a number inside, representing a data point. The number is the station number.

2. **Station Number** - The number inside the circle, representing the station number.

3. **Latitude** - The latitude of the station, given in degrees and minutes.

4. **Longitude** - The longitude of the station, given in degrees and minutes.

5. **Time** - The time of day, given in hours and minutes.

6. **Observer** - The name of the observer.

7. **Remarks** - Any additional information or remarks.

8. **Symbol** - A circle with a number inside, representing a data point. The number is the station number.

9. **Station Number** - The number inside the circle, representing the station number.

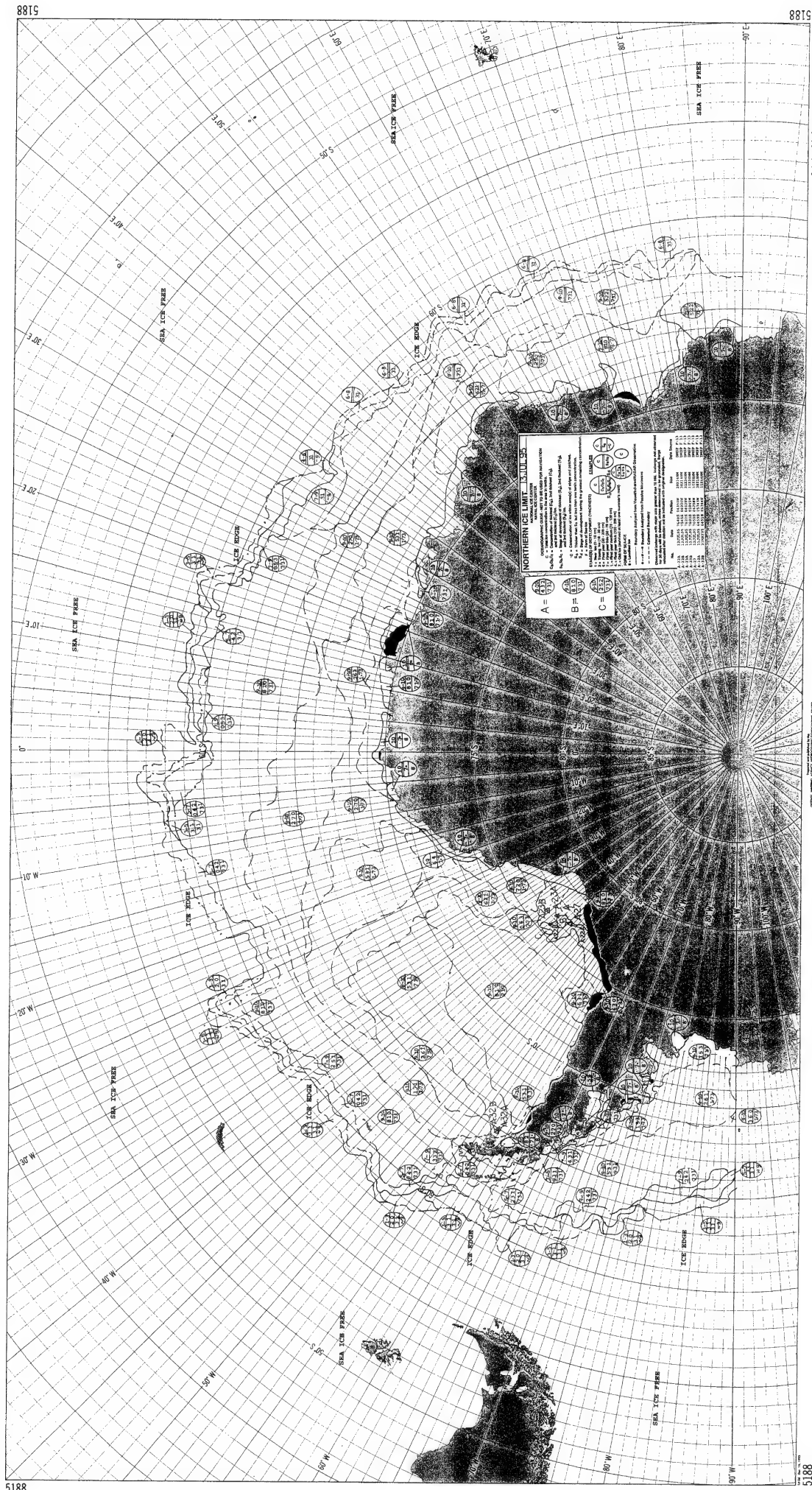
10. **Latitude** - The latitude of the station, given in degrees and minutes.

11. **Longitude** - The longitude of the station, given in degrees and minutes.

12. **Time** - The time of day, given in hours and minutes.

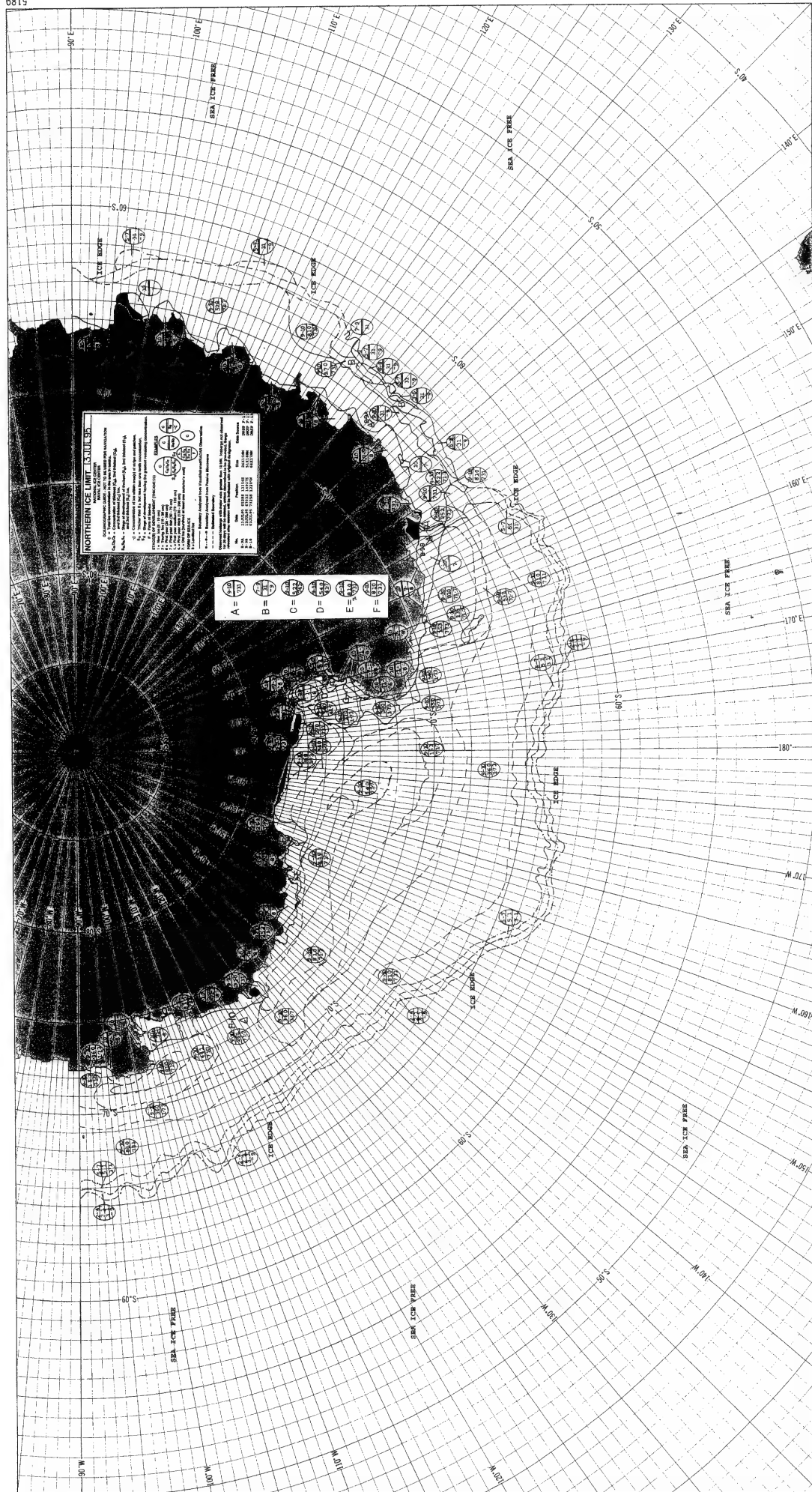
13. **Observer** - The name of the observer.

14. **Remarks** - Any additional information or remarks.



NORTHERN ICE LIMIT 15 JUL 55

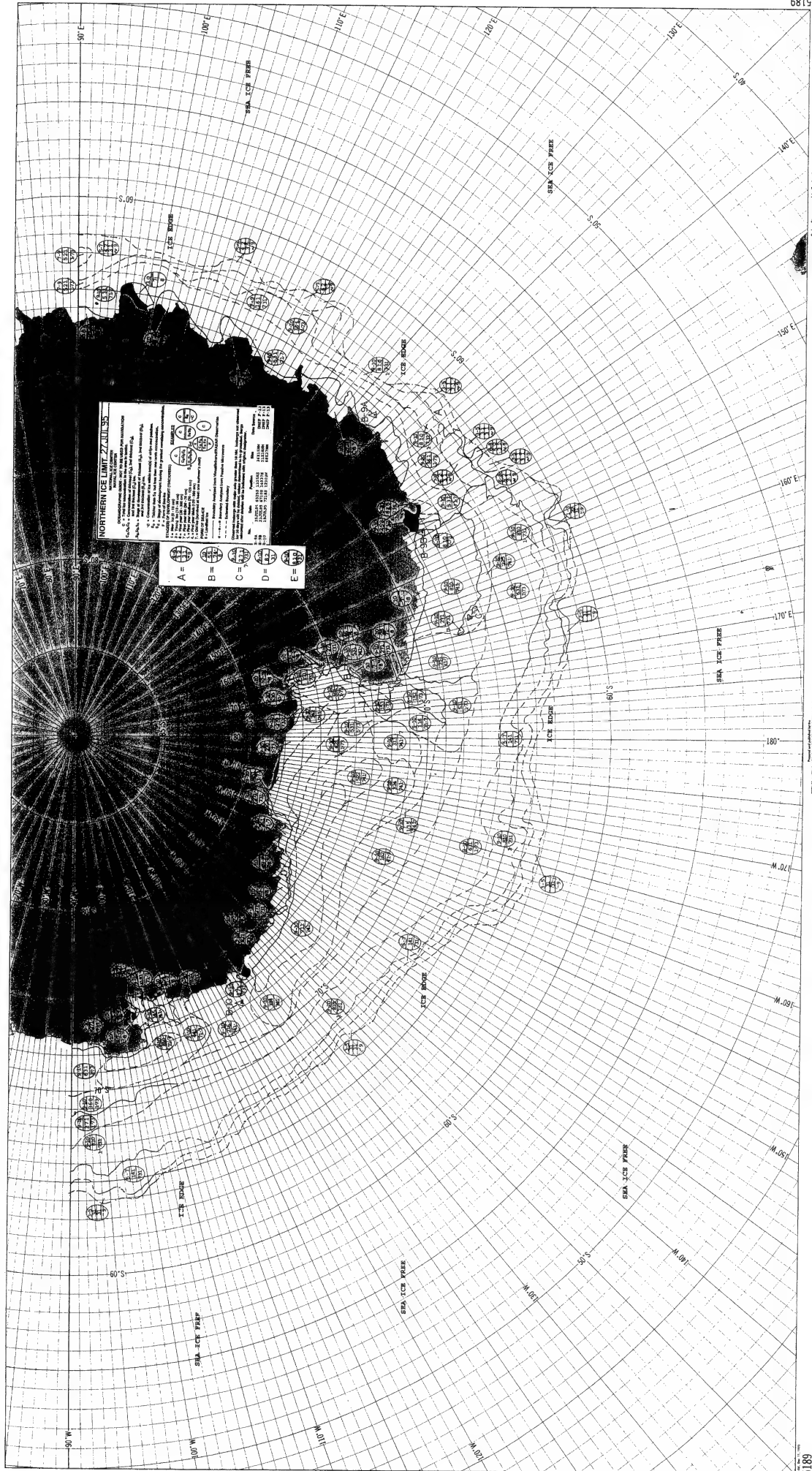
A = **B =** **C =** **D =** **E =** **F =** **G =** **H =** **I =** **J =** **K =** **L =** **M =** **N =** **O =** **P =** **Q =** **R =** **S =** **T =** **U =** **V =** **W =** **X =** **Y =** **Z =** **AA =** **AB =** **AC =** **AD =** **AE =** **AF =** **AG =** **AH =** **AI =** **AJ =** **AK =** **AL =** **AM =** **AN =** **AO =** **AP =** **AQ =** **AR =** **AS =** **AT =** **AU =** **AV =** **AW =** **AX =** **AY =** **AZ =** **BA =** **BB =** **BC =** **BD =** **BE =** **BF =** **BG =** **BH =** **BI =** **BJ =** **BK =** **BL =** **BM =** **BN =** **BO =** **BP =** **BQ =** **BR =** **BS =** **BT =** **BU =** **BV =** **BW =** **BX =** **BY =** **BZ =** **CA =** **CB =** **CC =** **CD =** **CE =** **CF =** **CG =** **CH =** **CI =** **CJ =** **CK =** **CL =** **CM =** **CN =** **CO =** **CP =** **CQ =** **CR =** **CS =** **CT =** **CU =** **CV =** **CW =** **CX =** **CY =** **CZ =** **DA =** **DB =** **DC =** **DD =** **DE =** **DF =** **DG =** **DH =** **DI =** **DJ =** **DK =** **DL =** **DM =** **DN =** **DO =** **DP =** **DQ =** **DR =** **DS =** **DT =** **DU =** **DV =** **DW =** **DX =** **DY =** **DZ =** **EA =** **EB =** **EC =** **ED =** **EE =** **EF =** **EG =** **EH =** **EI =** **EJ =** **EK =** **EL =** **EM =** **EN =** **EO =** **EP =** **EQ =** **ER =** **ES =** **ET =** **EU =** **EV =** **EW =** **EX =** **EY =** **EZ =** **FA =** **FB =** **FC =** **FD =** **FE =** **FF =** **FG =** **FH =** **FI =** **FJ =** **FK =** **FL =** **FM =** **FN =** **FO =** **FP =** **FQ =** **FR =** **FS =** **FT =** **FU =** **FV =** **FW =** **FX =** **FY =** **FZ =** **GA =** **GB =** **GC =** **GD =** **GE =** **GF =** **GG =** **GH =** **GI =** **GJ =** **GK =** **GL =** **GM =** **GN =** **GO =** **GP =** **GQ =** **GR =** **GS =** **GT =** **GU =** **GV =** **GW =** **GX =** **GY =** **GZ =** **HA =** **HB =** **HC =** **HD =** **HE =** **HF =** **HG =** **HH =** **HI =** **HJ =** **HK =** **HL =** **HM =** **HN =** **HO =** **HP =** **HQ =** **HR =** **HS =** **HT =** **HU =** **HV =** **HW =** **HX =** **HY =** **HZ =** **IA =** **IB =** **IC =** **ID =** **IE =** **IF =** **IG =** **IH =** **II =** **IJ =** **IK =** **IL =** **IM =** **IN =** **IO =** **IP =** **IQ =** **IR =** **IS =** **IT =** **IU =** **IV =** **IW =** **IX =** **IY =** **IZ =** **JA =** **JB =** **JC =** **JD =** **JE =** **JF =** **JG =** **JH =** **JI =** **JJ =** **JK =** **JL =** **JM =** **JN =** **JO =** **JP =** **JQ =** **JR =** **JS =** **JT =** **JU =** **JV =** **JW =** **JX =** **JY =** **JZ =** **KA =** **KB =** **KC =** **KD =** **KE =** **KF =** **KG =** **KH =** **KI =** **KJ =** **KK =** **KL =** **KM =** **KN =** **KO =** **KP =** **KQ =** **KR =** **KS =** **KT =** **KU =** **KV =** **KW =** **KX =** **KY =** **KZ =** **LA =** **LB =** **LC =** **LD =** **LE =** **LF =** **LG =** **LH =** **LI =** **LJ =** **LK =** **LL =** **LM =** **LN =** **LO =** **LP =** **LQ =** **LR =** **LS =** **LT =** **LU =** **LV =** **LW =** **LX =** **LY =** **LZ =** **MA =** **MB =** **MC =** **MD =** **ME =** **MF =** **MG =** **MH =** **MI =** **MJ =** **MK =** **ML =** **MM =** **MN =** **MO =** **MP =** **MQ =** **MR =** **MS =** **MT =** **MU =** **MV =** **MW =** **MX =** **MY =** **MZ =** **NA =** **NB =** **NC =** **ND =** **NE =** **NF =** **NG =** **NH =** **NI =** **NJ =** **NK =** **NL =** **NM =** **NN =** **NO =** **NP =** **NQ =** **NR =** **NS =** **NT =** **NU =** **NV =** **NW =** **NX =** **NY =** **NZ =** **OA =** **OB =** **OC =** **OD =** **OE =** **OF =** **OG =** **OH =** **OI =** **OJ =** **OK =** **OL =** **OM =** **ON =** **OO =** **OP =** **OQ =** **OR =** **OS =** **OT =** **OU =** **OV =** **OW =** **OX =** **OY =** **OZ =** **PA =** **PB =** **PC =** **PD =** **PE =** **PF =** **PG =** **PH =** **PI =** **PJ =** **PK =** **PL =** **PM =** **PN =** **PO =** **PP =** **PQ =** **PR =** **PS =** **PT =** **PU =** **PV =** **PW =** **PX =** **PY =** **PZ =** **QA =** **QB =** **QC =** **QD =** **QE =** **QF =** **QG =** **QH =** **QI =** **QJ =** **QK =** **QL =** **QM =** **QN =** **QO =** **QP =** **QQ =** **QR =** **QS =** **QT =** **QU =** **Q**

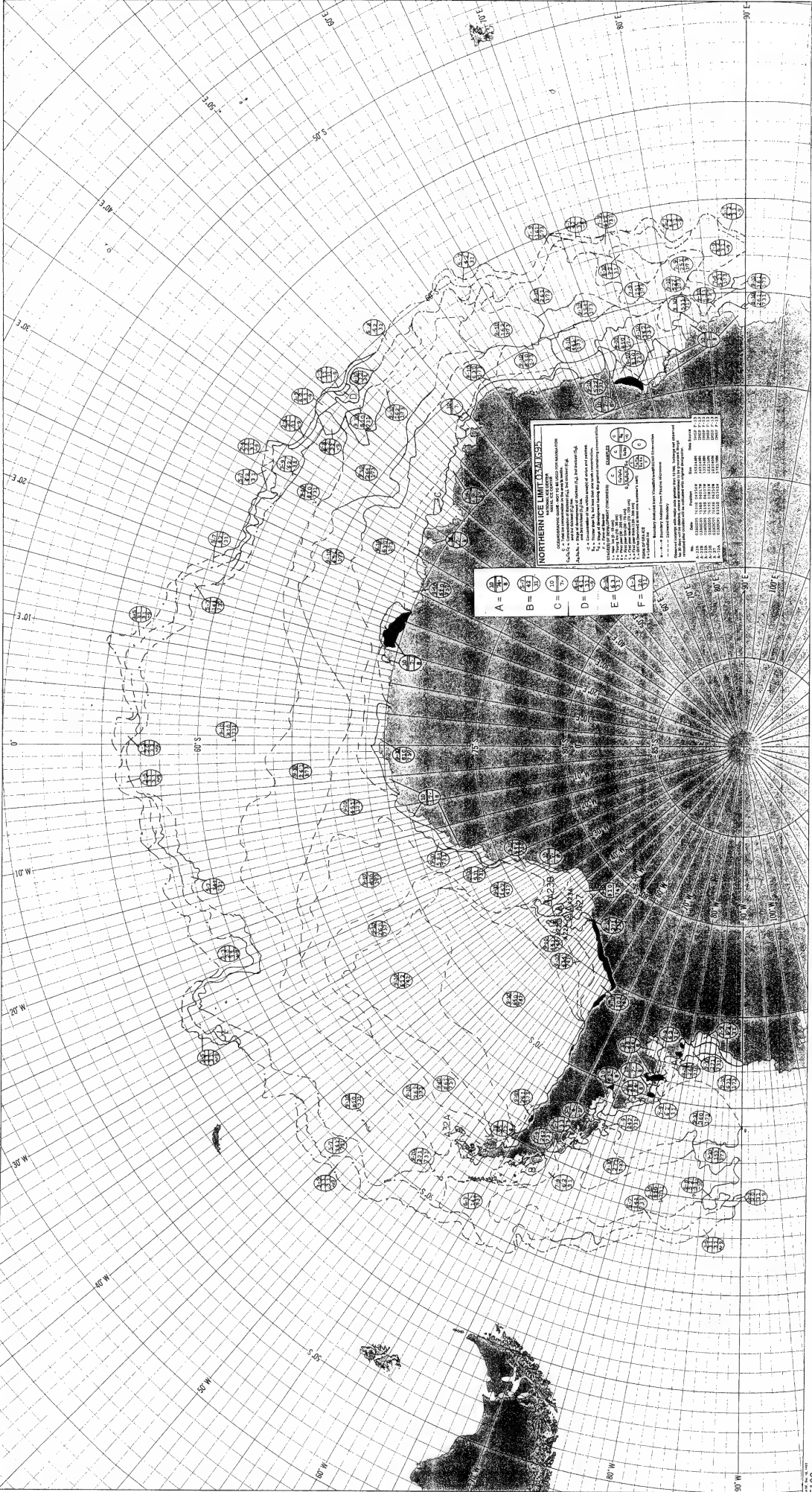


NOAA
Nautical Chart
1:50,000
North America
1/2000









NORTHERN ICE LIMIT 1955
NAVIGATION

LEGEND

A = 1/2
B = 1/4
C = 1/8
D = 1/16
E = 1/32
F = 1/64

1. Symbols A through F indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

2. Symbols A through F are used to indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

3. Symbols A through F are used to indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

4. Symbols A through F are used to indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

5. Symbols A through F are used to indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

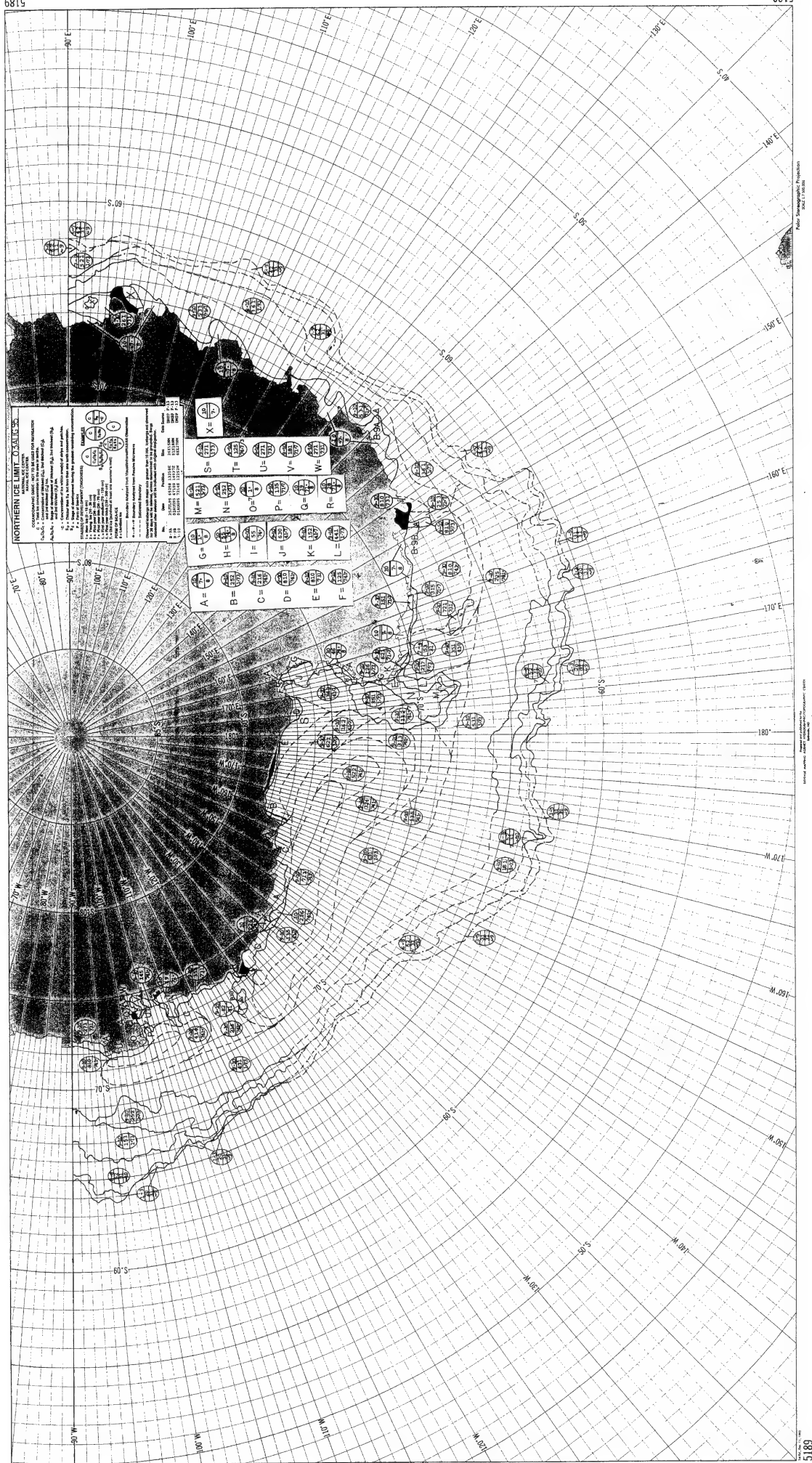
6. Symbols A through F are used to indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

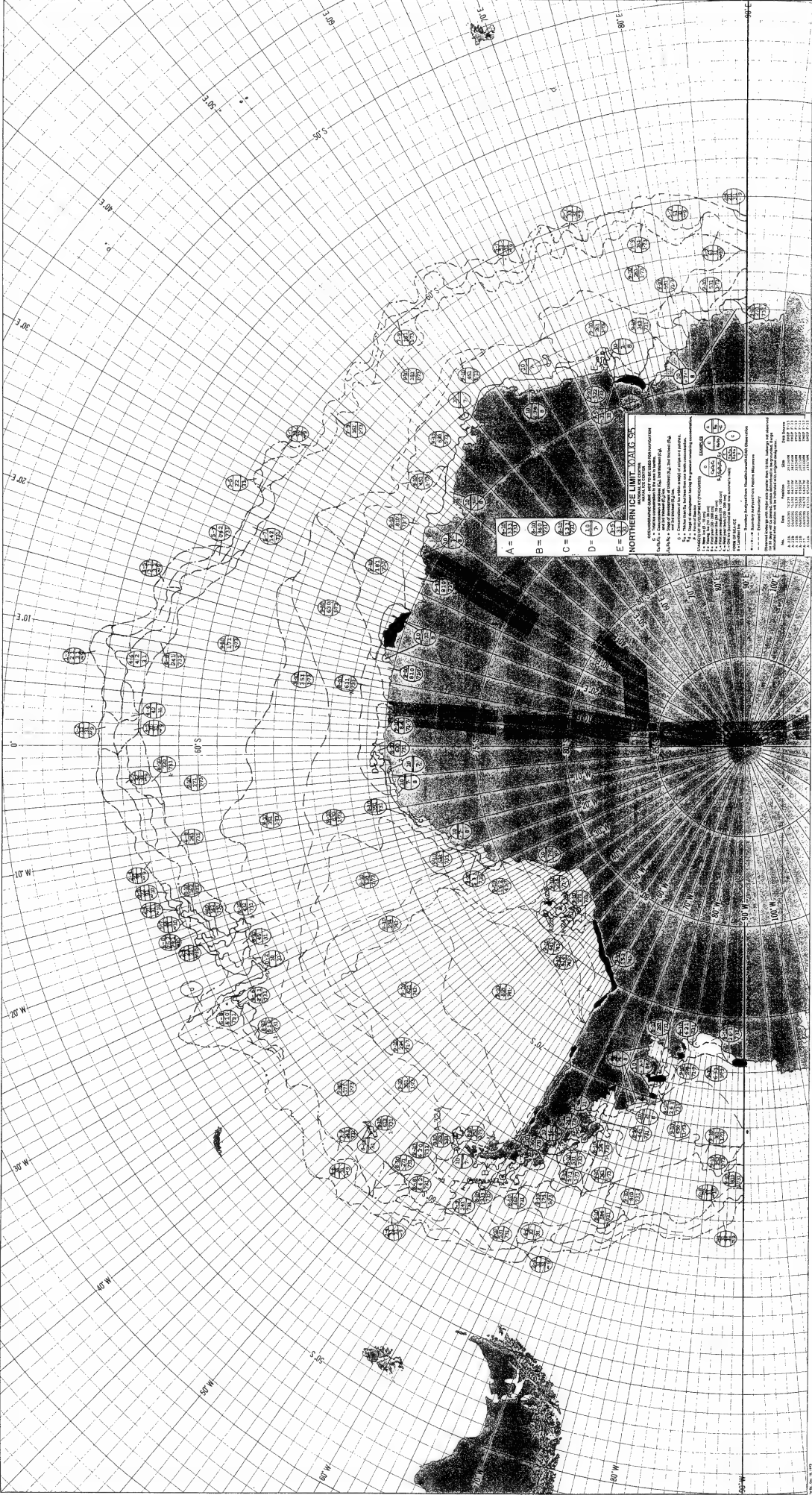
7. Symbols A through F are used to indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

8. Symbols A through F are used to indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

9. Symbols A through F are used to indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

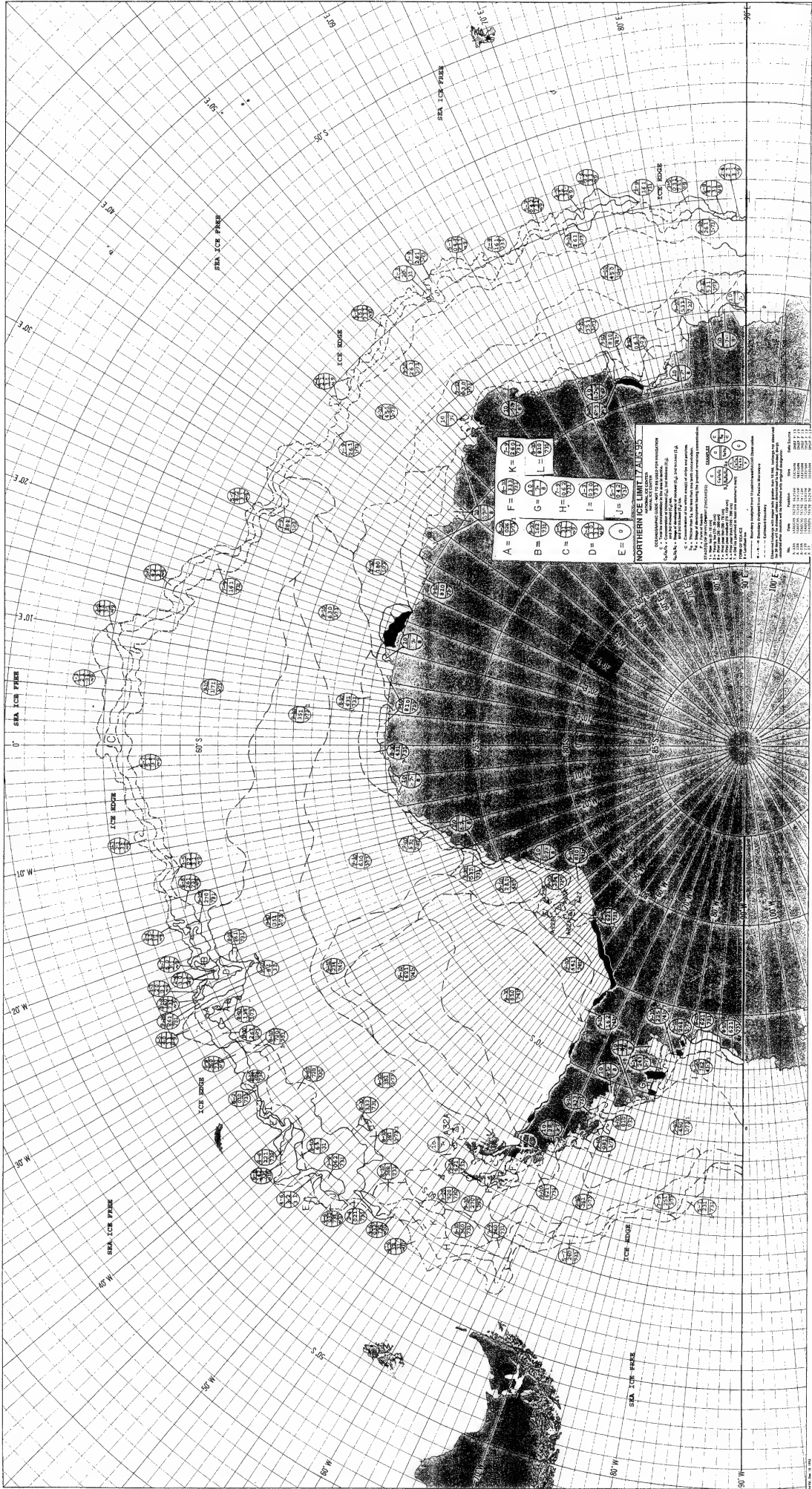
10. Symbols A through F are used to indicate the probability of ice being encountered in the area shown. The probability is expressed as a fraction of the total area. For example, a symbol A indicates a probability of 1/2, or 50%, of encountering ice. A symbol F indicates a probability of 1/64, or 1.56%, of encountering ice.

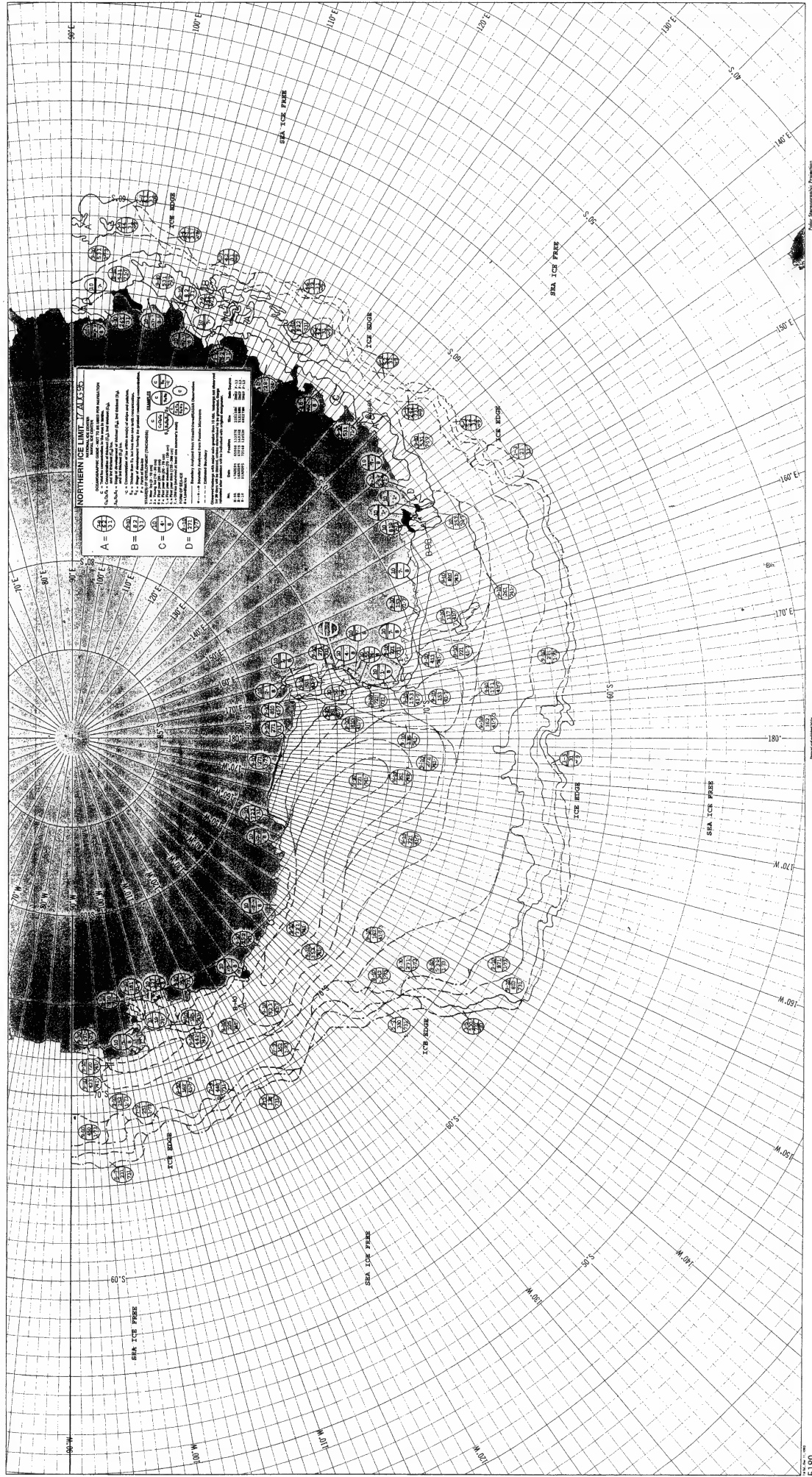




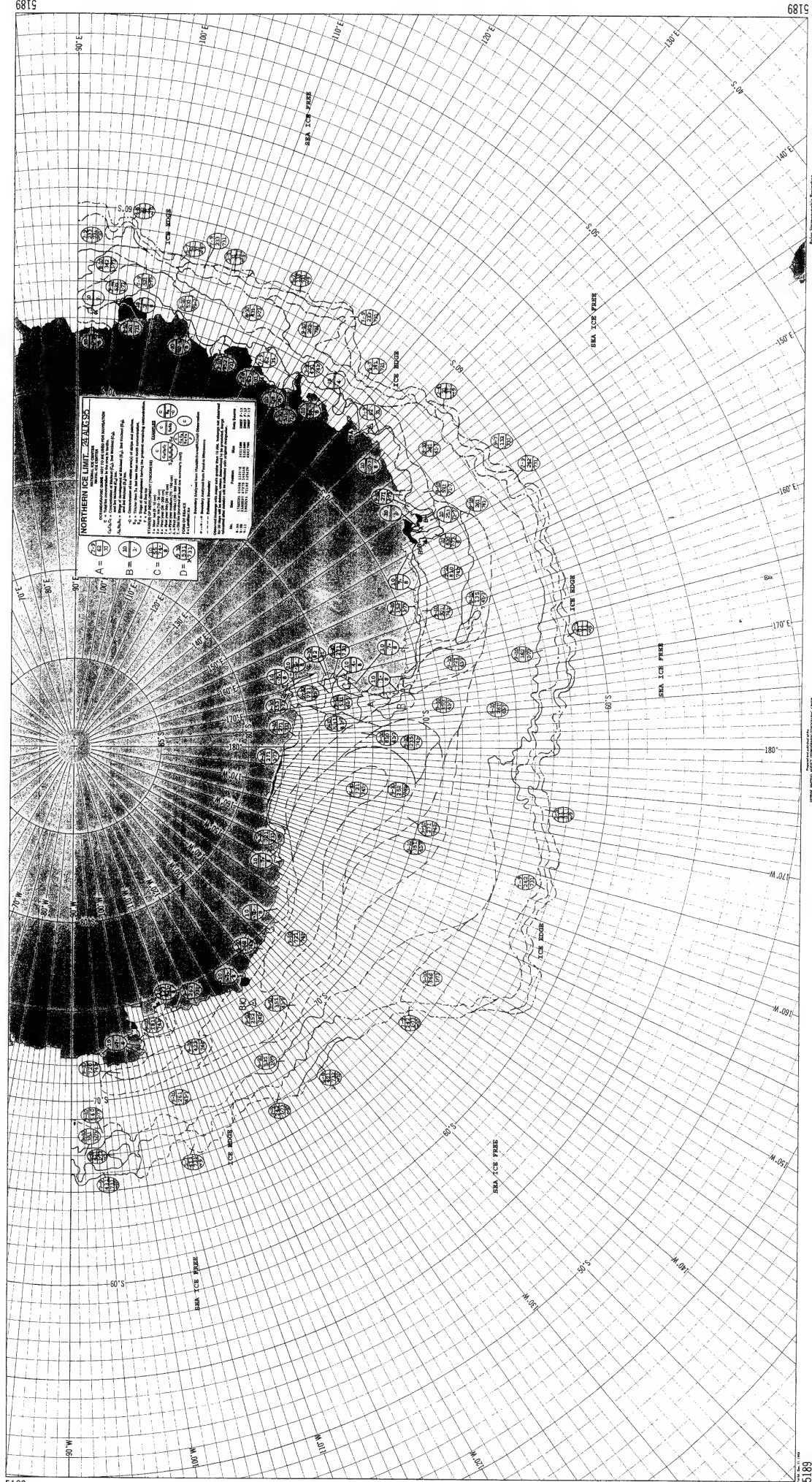
Projection: Polar Stereographic
Scale: 1:100,000











NORTHERN ICE LIMIT - JULY 1955

Map showing the Northern Ice Limit for July 1955. The map includes a grid of latitude and longitude lines, and a legend for ice types and thicknesses.

Legend:

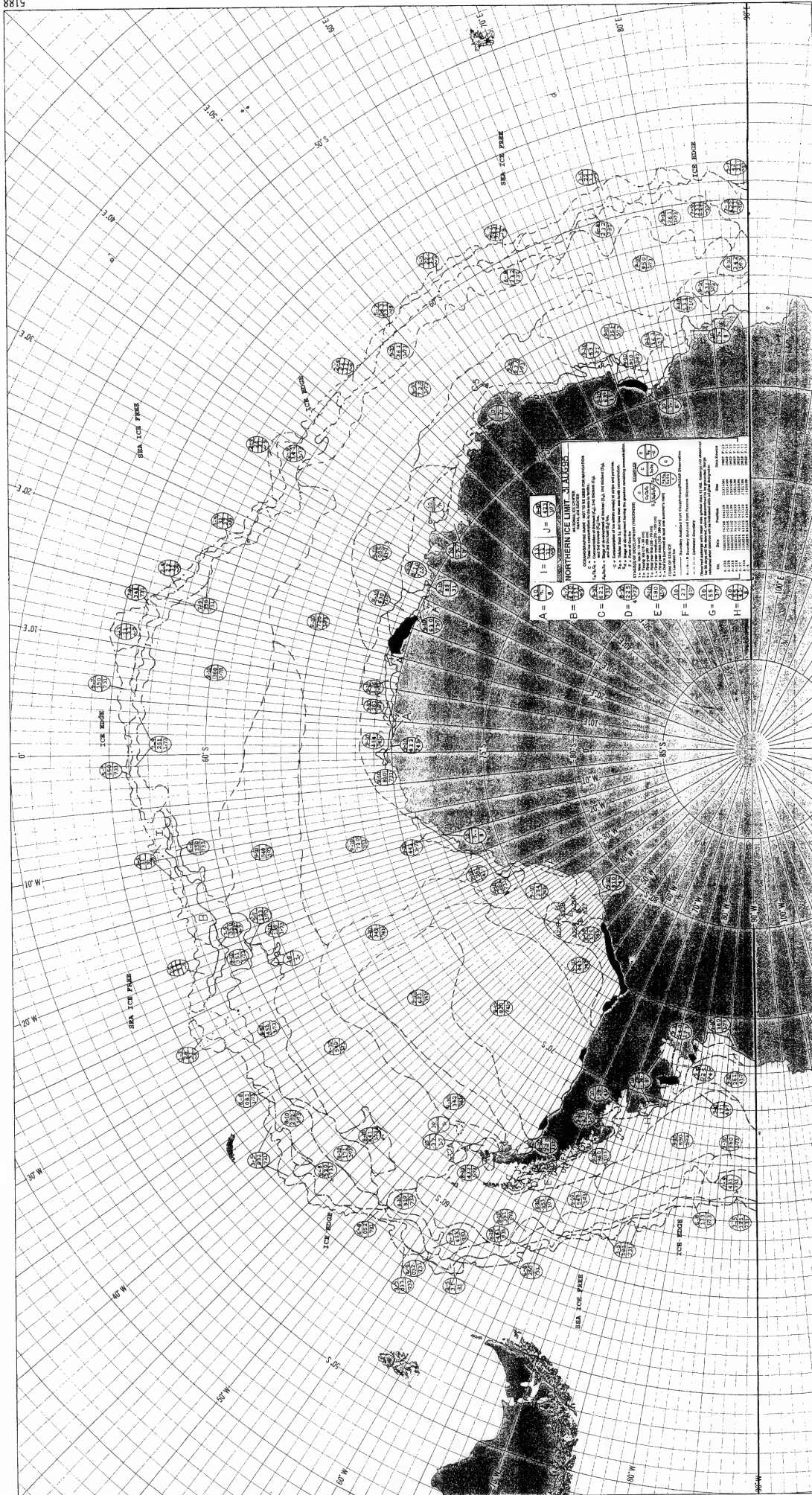
- A =** Sea Ice (Thin)
- B =** Sea Ice (Medium)
- C =** Sea Ice (Thick)
- D =** Sea Ice (Very Thick)

Ice Thickness Legend:

- 1** - 100 feet or more
- 2** - 100 to 200 feet
- 3** - 200 to 300 feet
- 4** - 300 to 400 feet
- 5** - 400 to 500 feet
- 6** - 500 to 600 feet
- 7** - 600 to 700 feet
- 8** - 700 to 800 feet
- 9** - 800 to 900 feet
- 10** - 900 to 1000 feet

Other Symbols:

- 1** - Ice Edge
- 2** - Ice Breaker
- 3** - Iceberg
- 4** - Iceberg
- 5** - Iceberg
- 6** - Iceberg
- 7** - Iceberg
- 8** - Iceberg
- 9** - Iceberg
- 10** - Iceberg



NORTHERN ICE LIMIT 31 AUG 55

Legend:

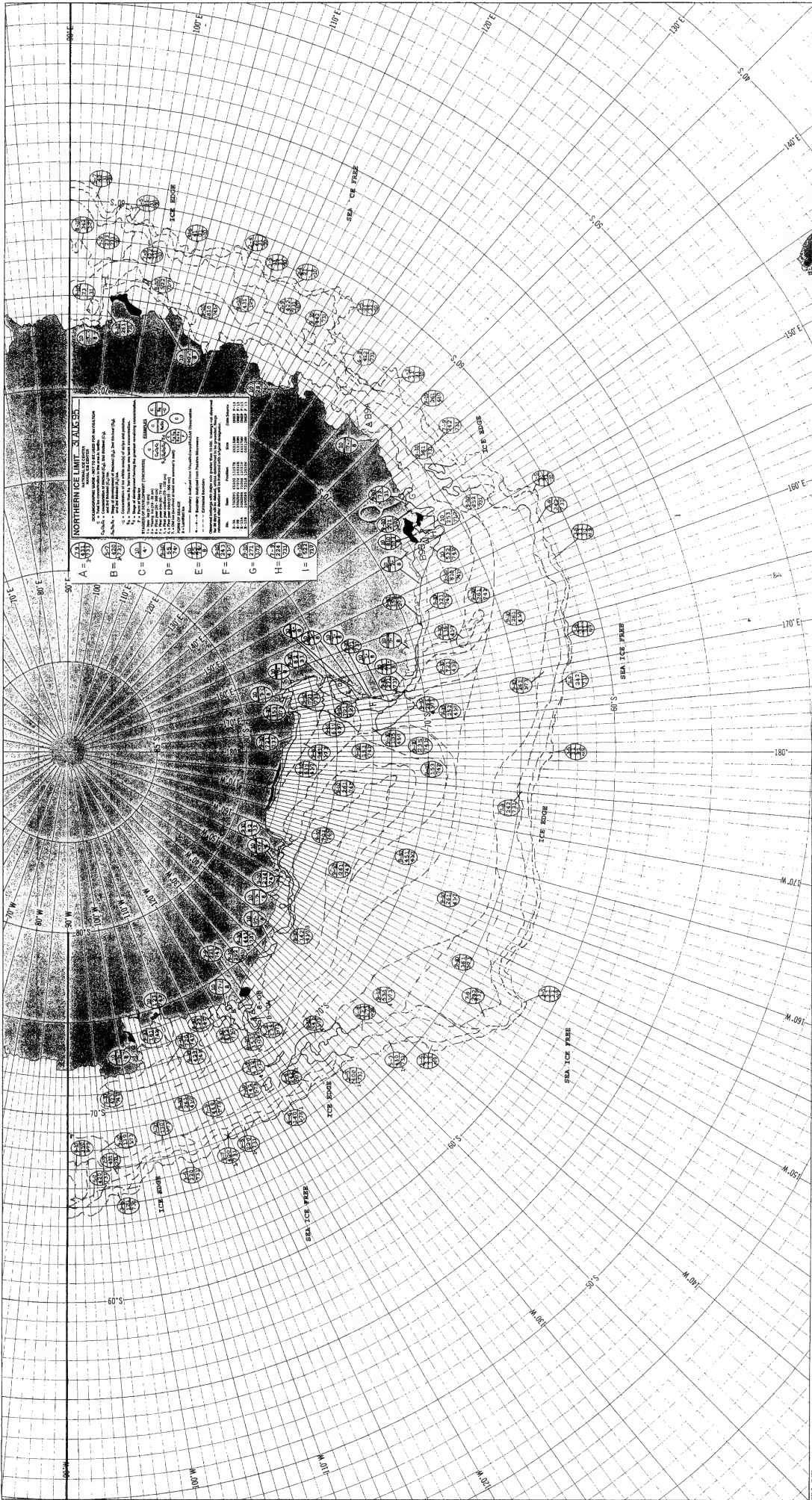
- A = 10' - 20' (10' - 20' Ice)
- B = 20' - 30' (20' - 30' Ice)
- C = 30' - 40' (30' - 40' Ice)
- D = 40' - 50' (40' - 50' Ice)
- E = 50' - 60' (50' - 60' Ice)
- F = 60' - 70' (60' - 70' Ice)
- G = 70' - 80' (70' - 80' Ice)
- H = 80' - 90' (80' - 90' Ice)
- I = 90' - 100' (90' - 100' Ice)
- J = 100' - 110' (100' - 110' Ice)
- K = 110' - 120' (110' - 120' Ice)
- L = 120' - 130' (120' - 130' Ice)
- M = 130' - 140' (130' - 140' Ice)
- N = 140' - 150' (140' - 150' Ice)
- O = 150' - 160' (150' - 160' Ice)
- P = 160' - 170' (160' - 170' Ice)
- Q = 170' - 180' (170' - 180' Ice)
- R = 180' - 190' (180' - 190' Ice)
- S = 190' - 200' (190' - 200' Ice)
- T = 200' - 210' (200' - 210' Ice)
- U = 210' - 220' (210' - 220' Ice)
- V = 220' - 230' (220' - 230' Ice)
- W = 230' - 240' (230' - 240' Ice)
- X = 240' - 250' (240' - 250' Ice)
- Y = 250' - 260' (250' - 260' Ice)
- Z = 260' - 270' (260' - 270' Ice)

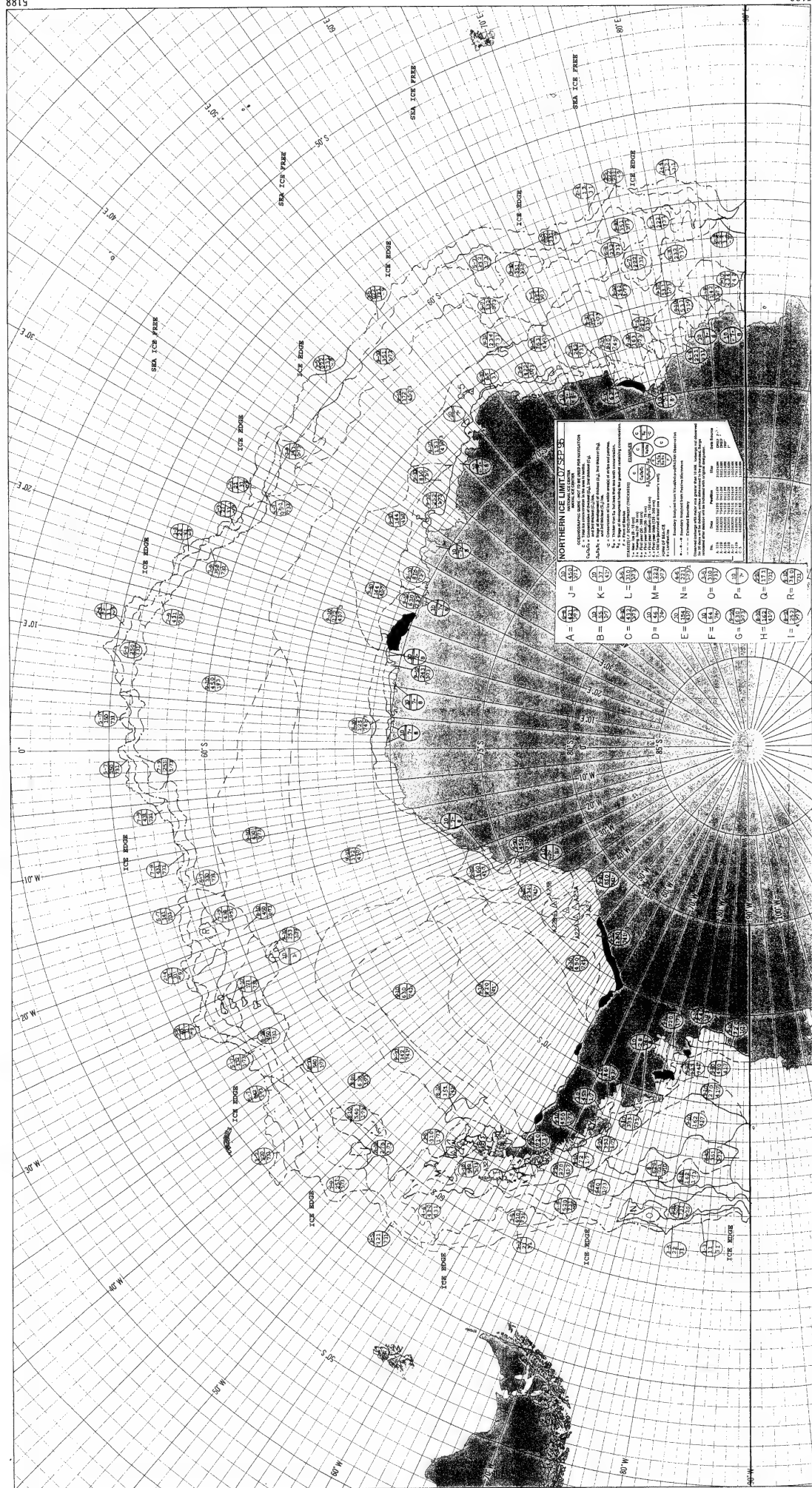
Notes:

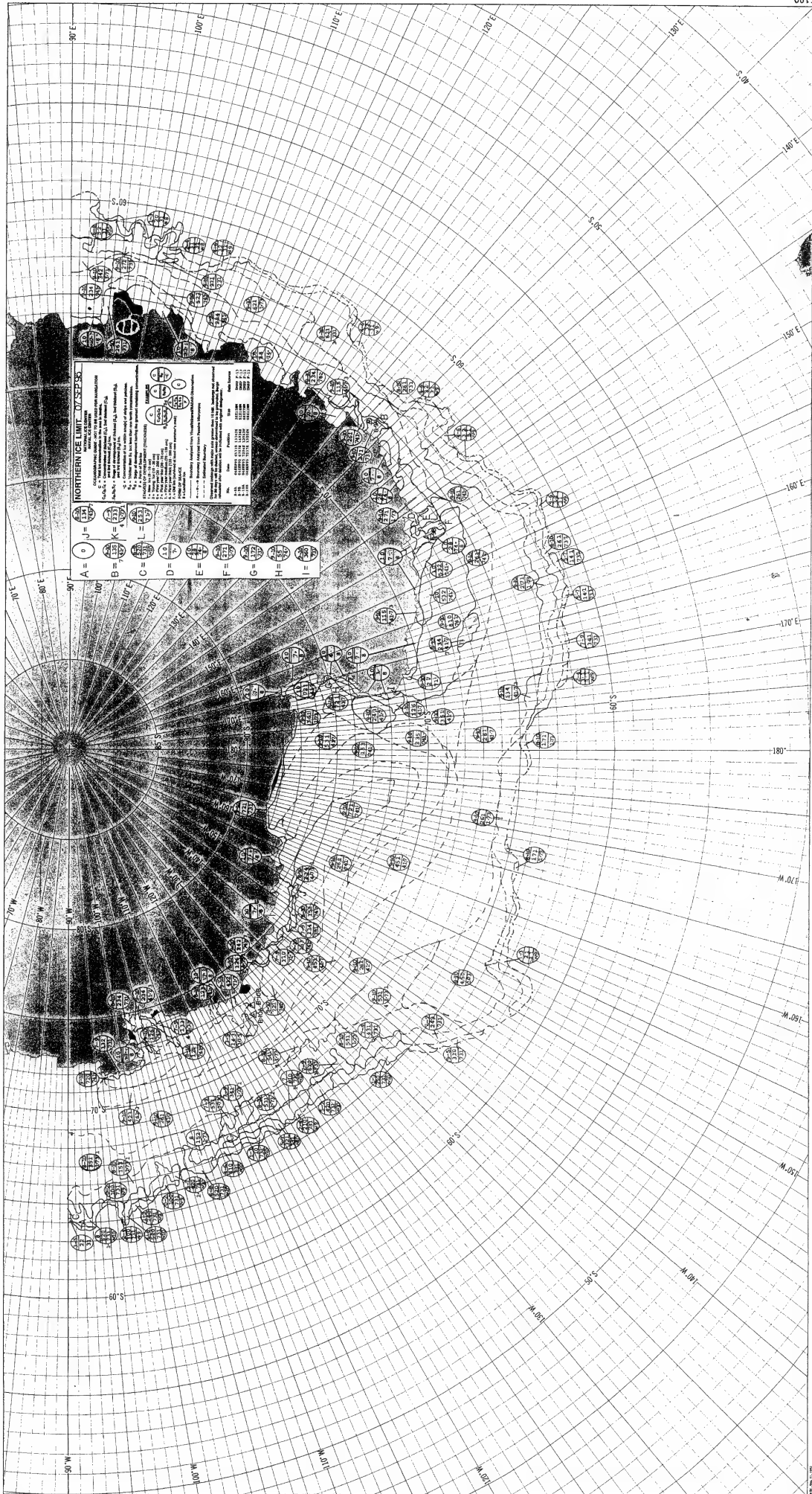
- 1. This chart is based on the latest available information.
- 2. The ice limits are shown for the period 31 August 1955.
- 3. The ice limits are shown in feet.
- 4. The ice limits are shown for the period 31 August 1955.
- 5. The ice limits are shown in feet.
- 6. The ice limits are shown for the period 31 August 1955.
- 7. The ice limits are shown in feet.
- 8. The ice limits are shown for the period 31 August 1955.
- 9. The ice limits are shown in feet.
- 10. The ice limits are shown for the period 31 August 1955.

Projection: Polar Stereographic
Scale: 1:100,000

Source: U.S. Navy Hydrographic Office
Revised: 1955



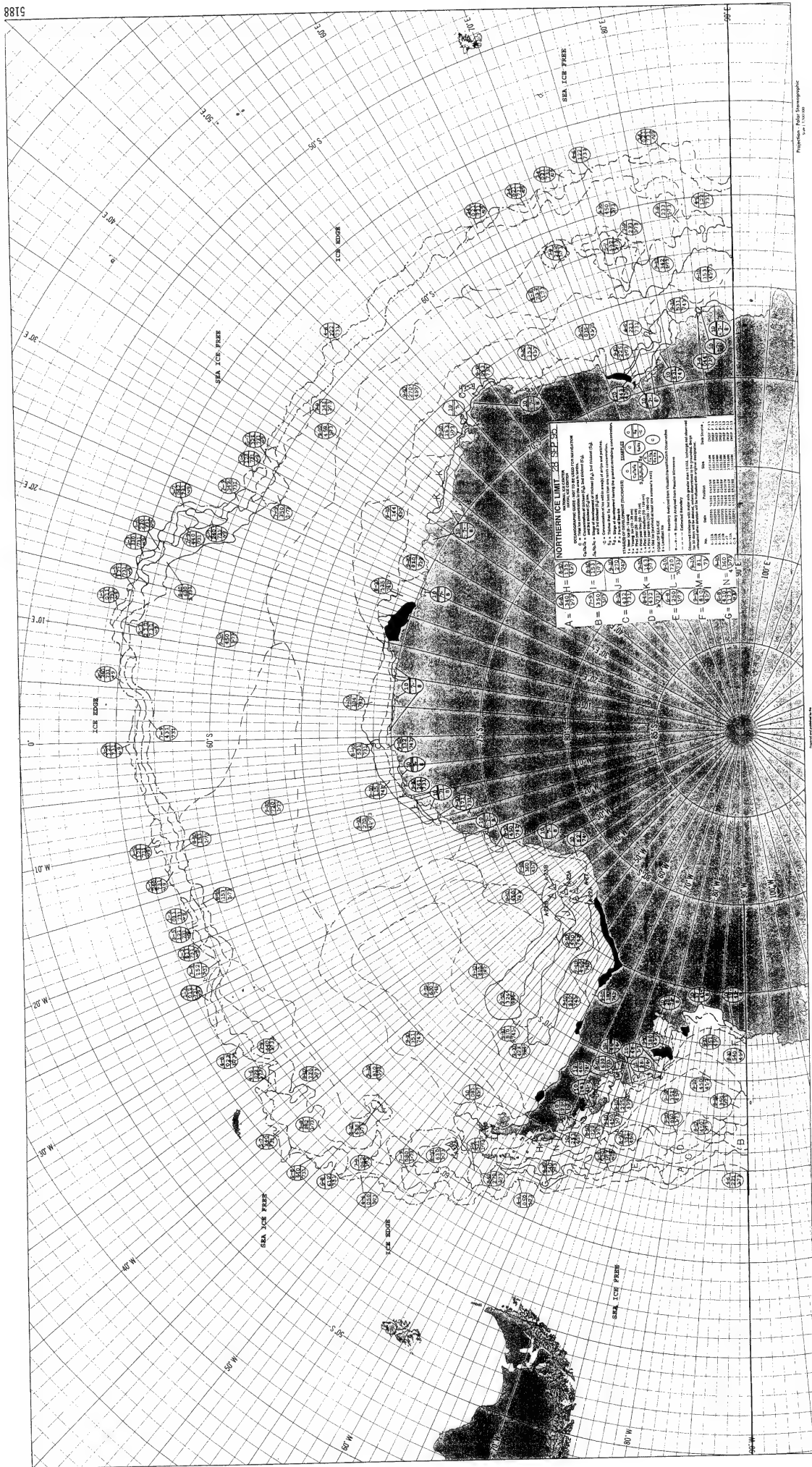










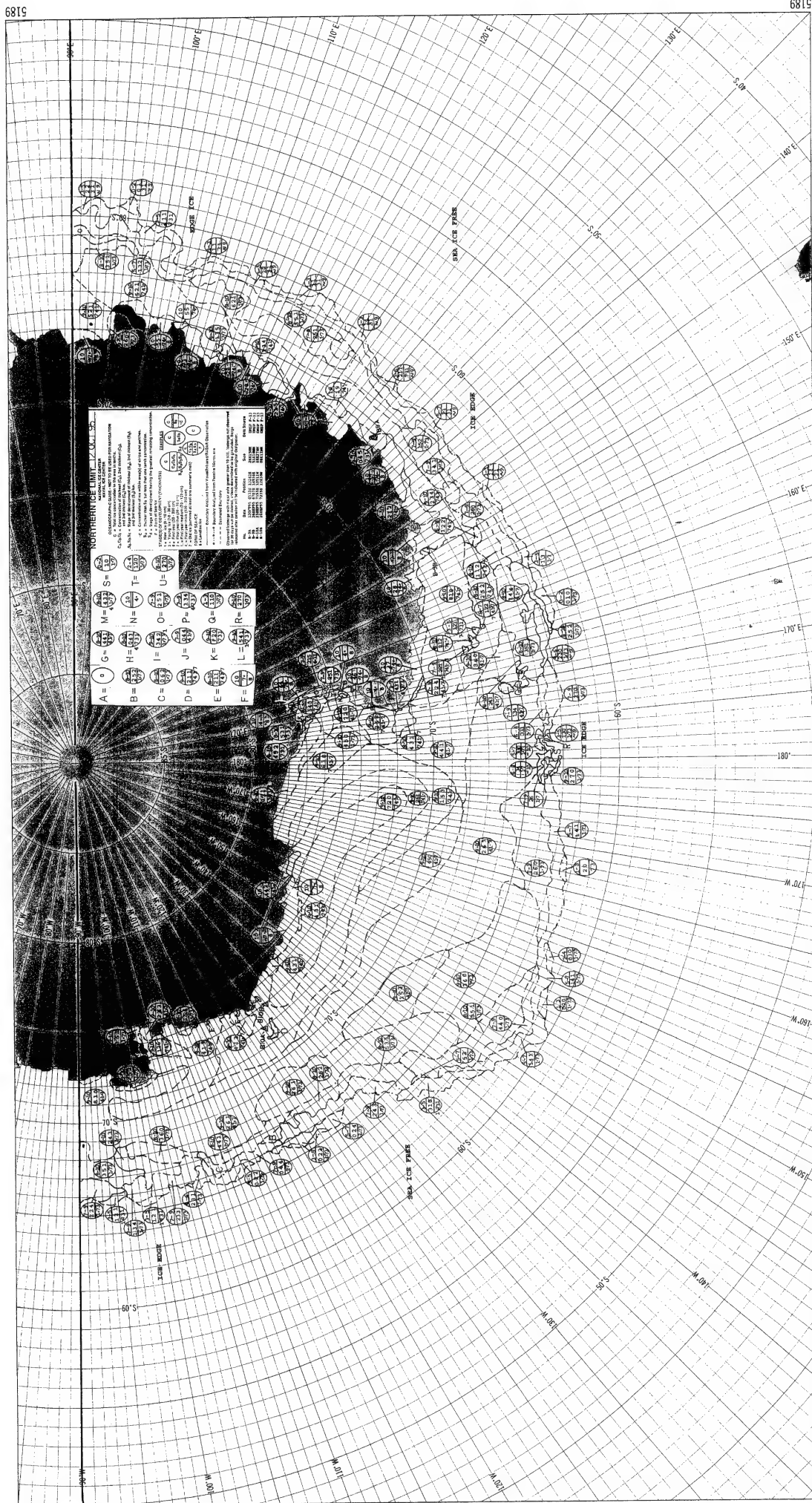


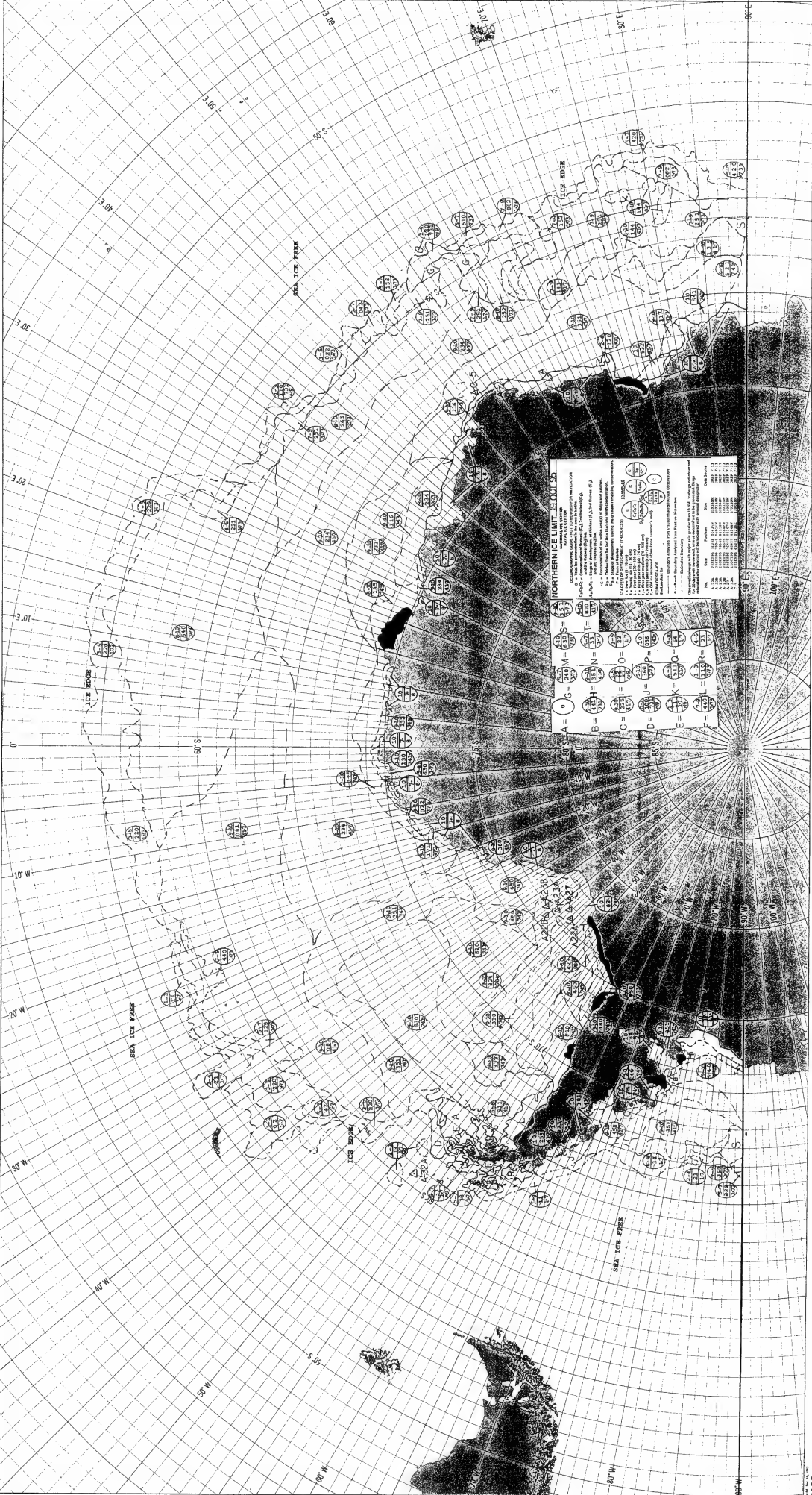






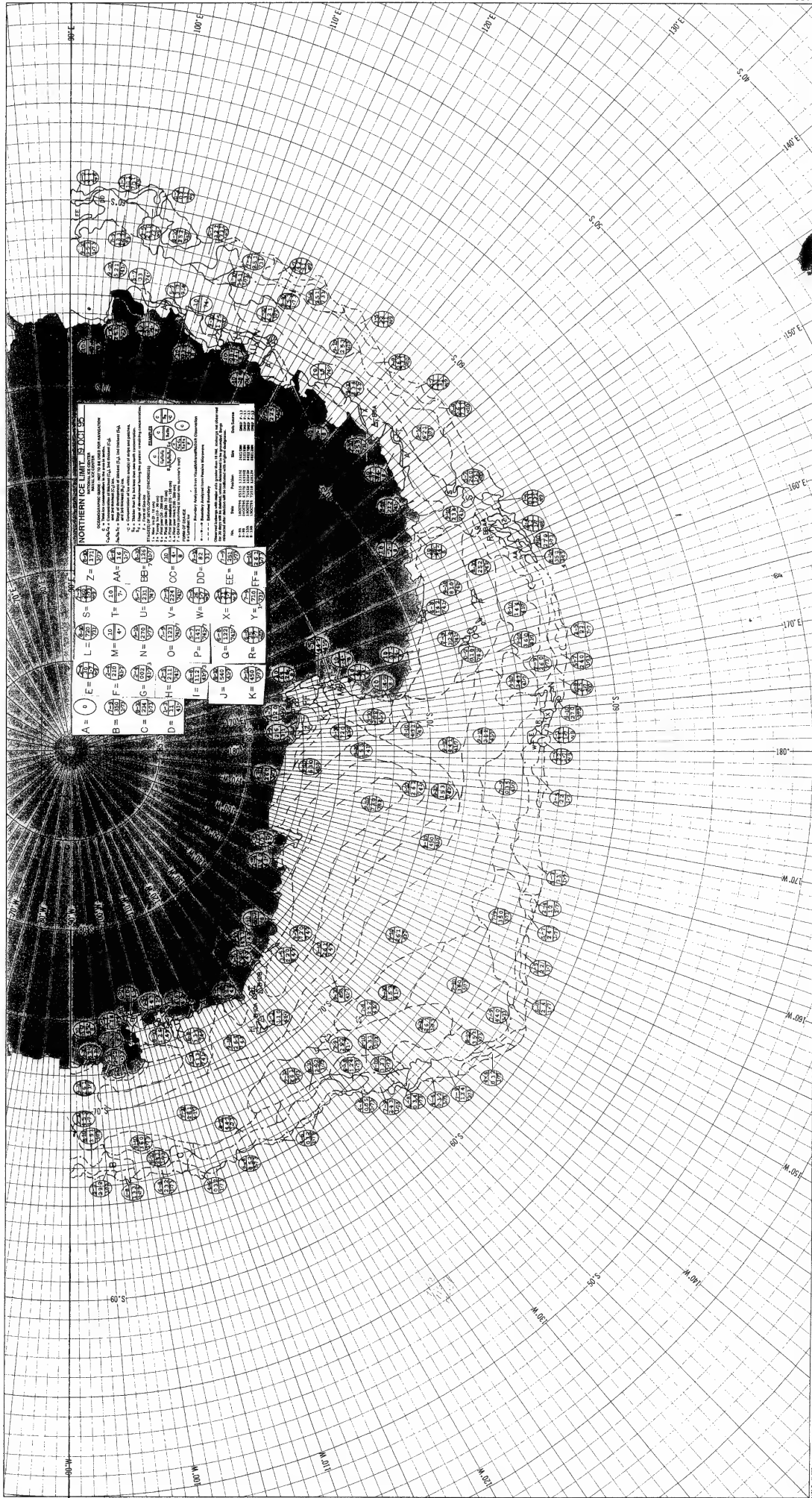


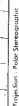


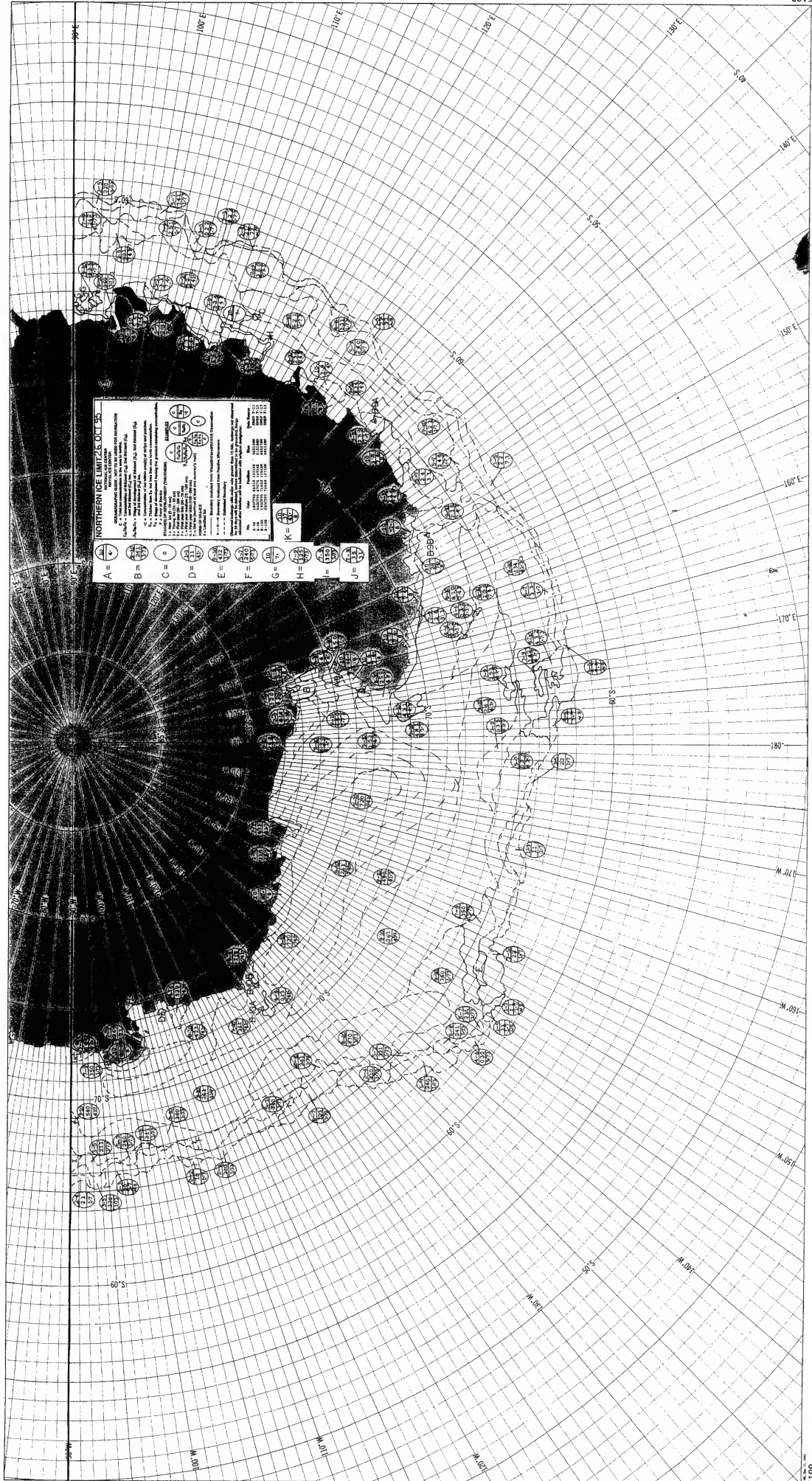


Published by the Hydrographic Office, Washington, D.C.

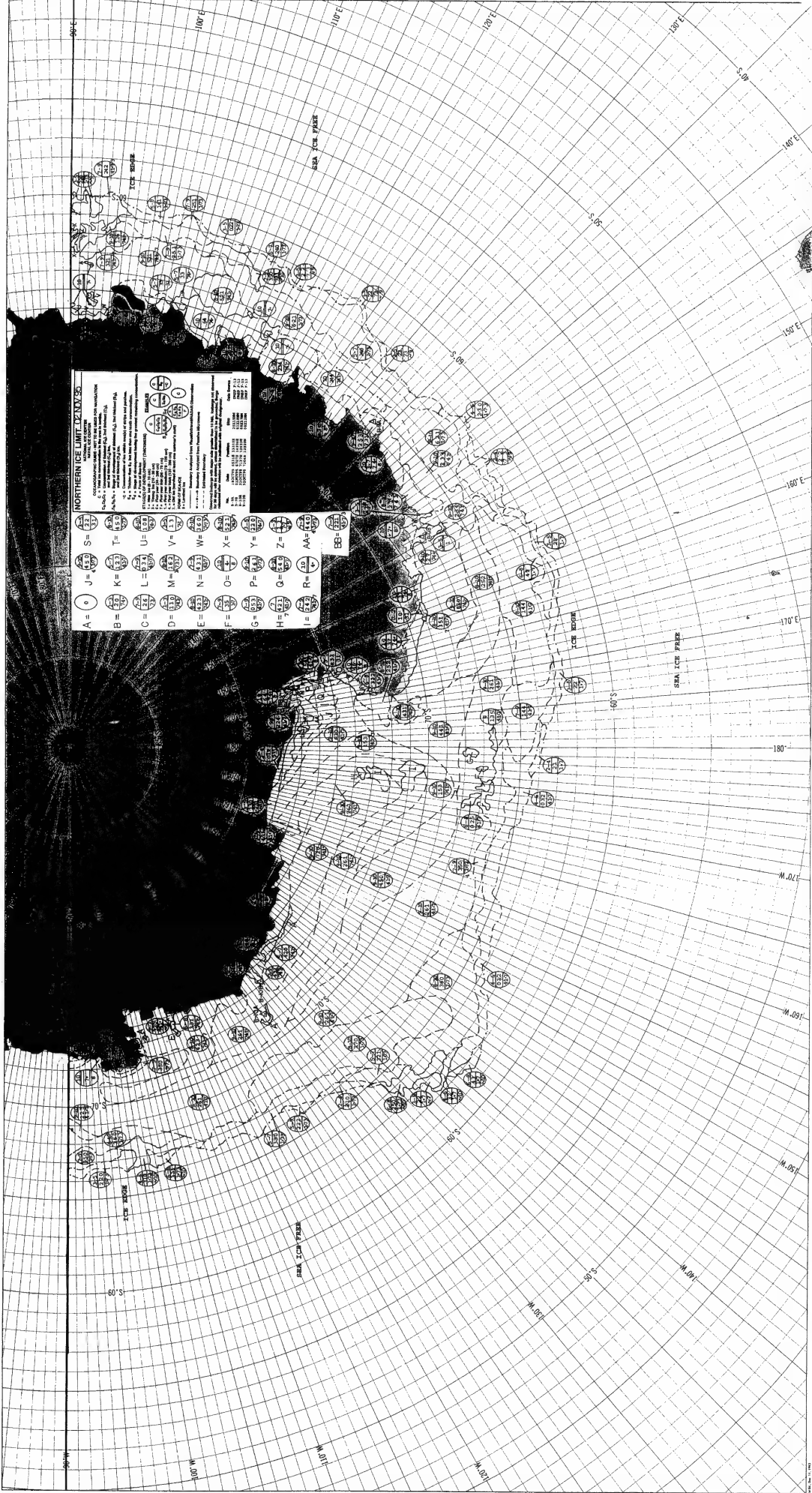
Copyright 1905 by the Hydrographic Office, Washington, D.C.







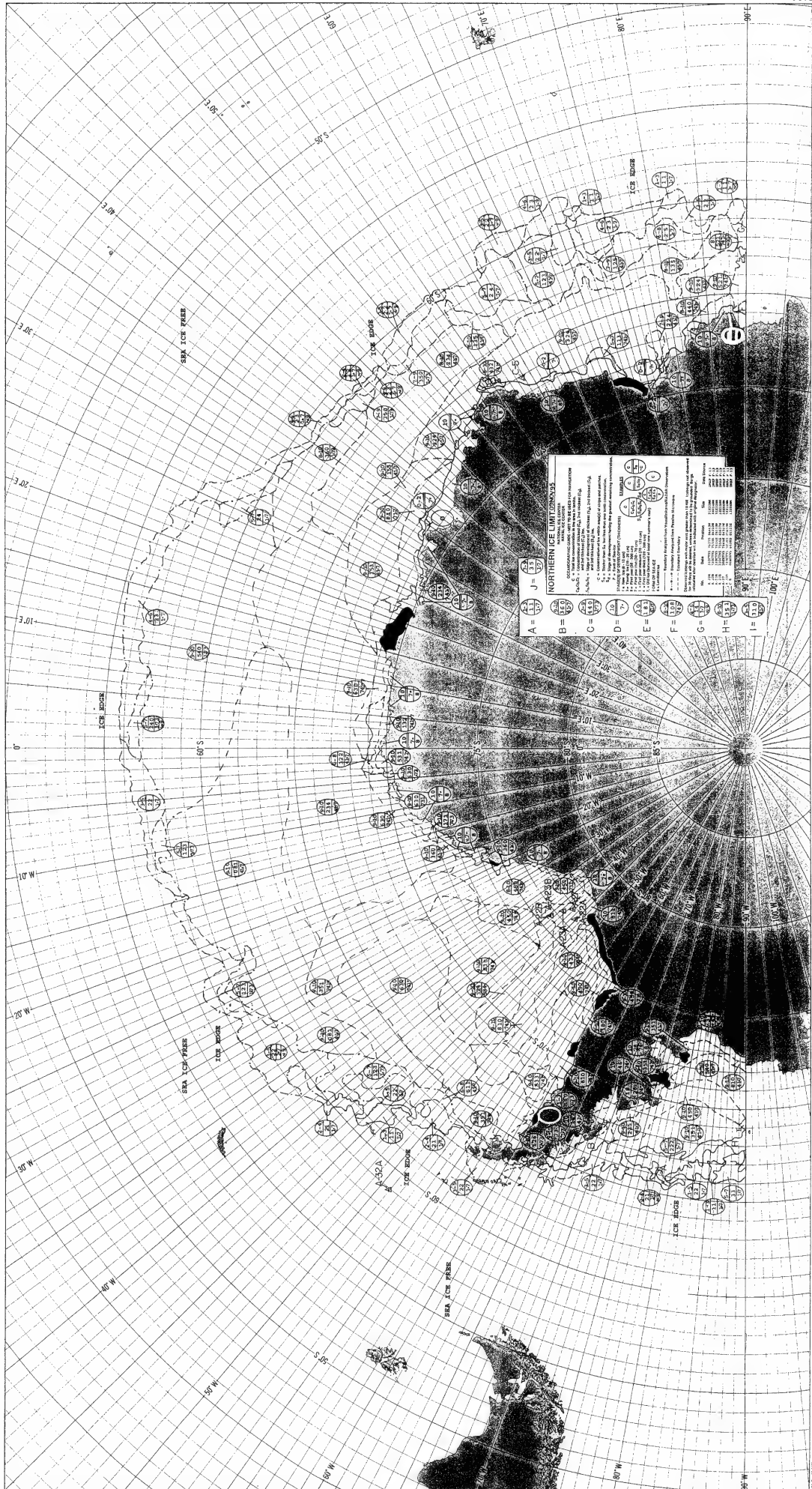


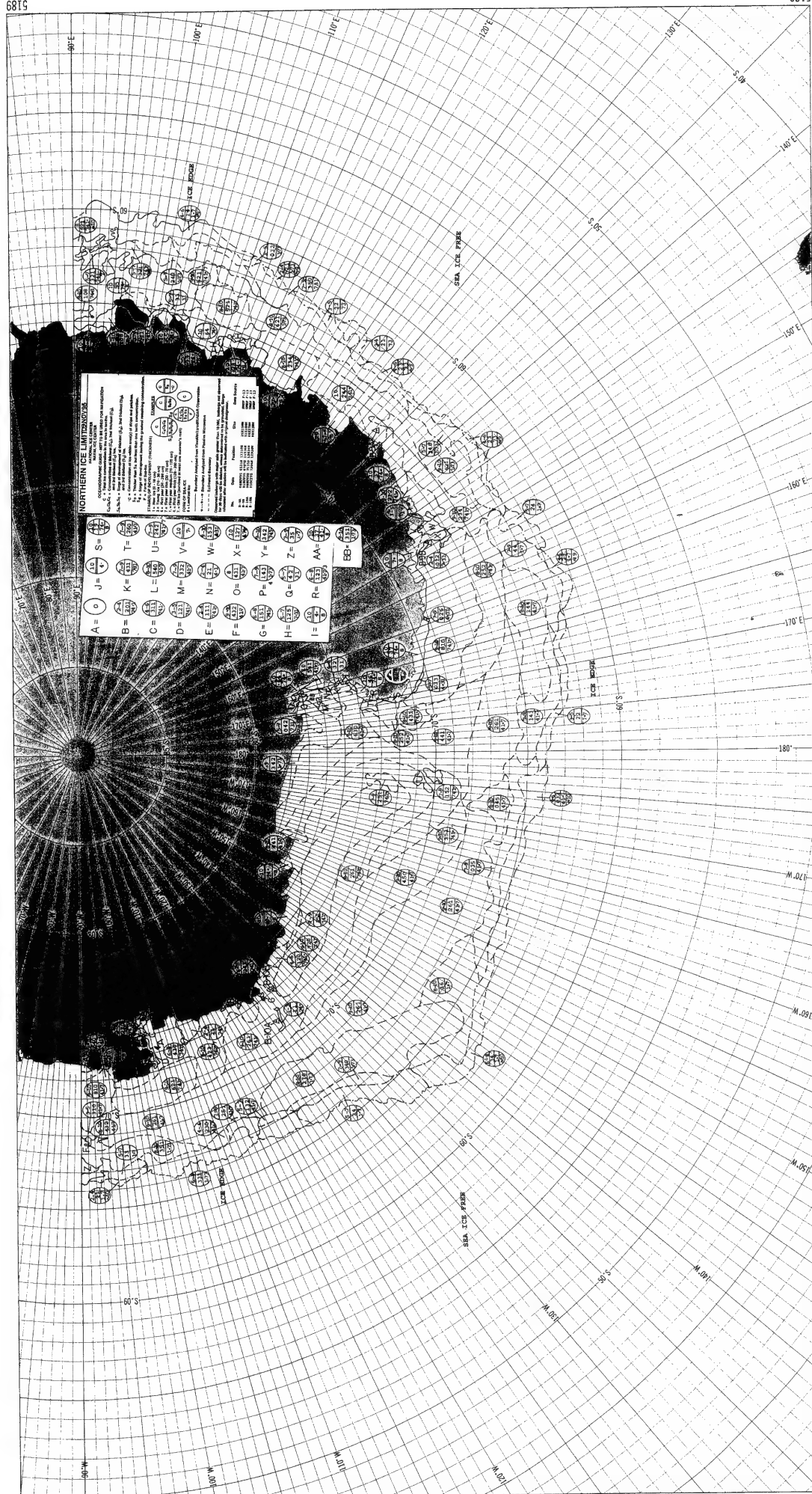


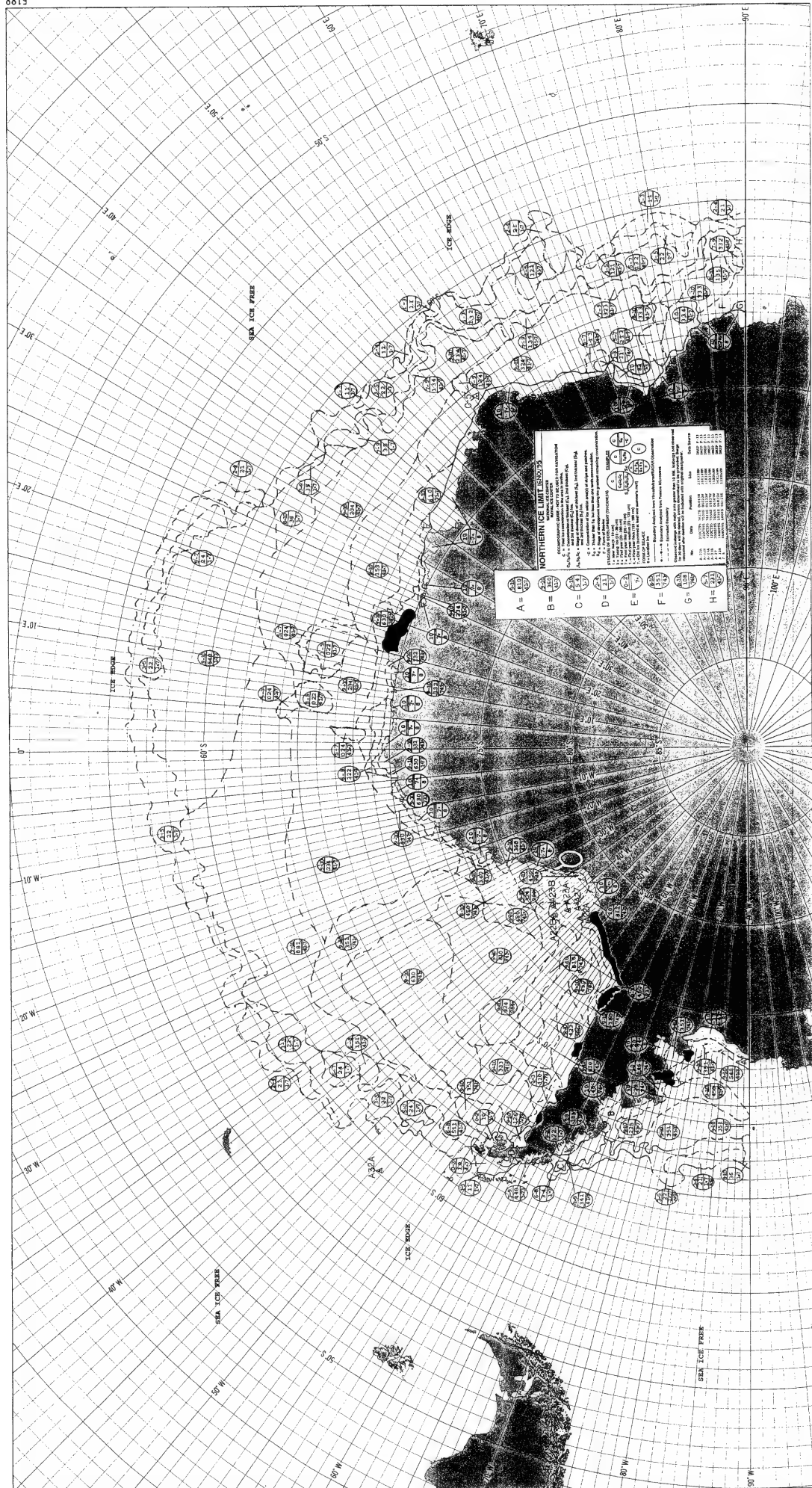
NORTHERN ICE LIMIT 02 NOV 55

ICE LIMITS FOR THE NORTH PACIFIC OCEAN, 02 NOV 55. This chart shows the limits of ice in the North Pacific Ocean as of 02 NOV 55. The limits are shown in degrees latitude and longitude. The limits are based on the latest available information and are subject to change.

Letter	Latitude	Longitude
A	0	0
B	10	10
C	20	20
D	30	30
E	40	40
F	50	50
G	60	60
H	70	70
I	80	80
J	90	90
K	10	110
L	20	120
M	30	130
N	40	140
O	50	150
P	60	160
Q	70	170
R	80	180
S	90	190
T	10	200
U	20	210
V	30	220
W	40	230
X	50	240
Y	60	250
Z	70	260
AA	80	270
BB	90	280

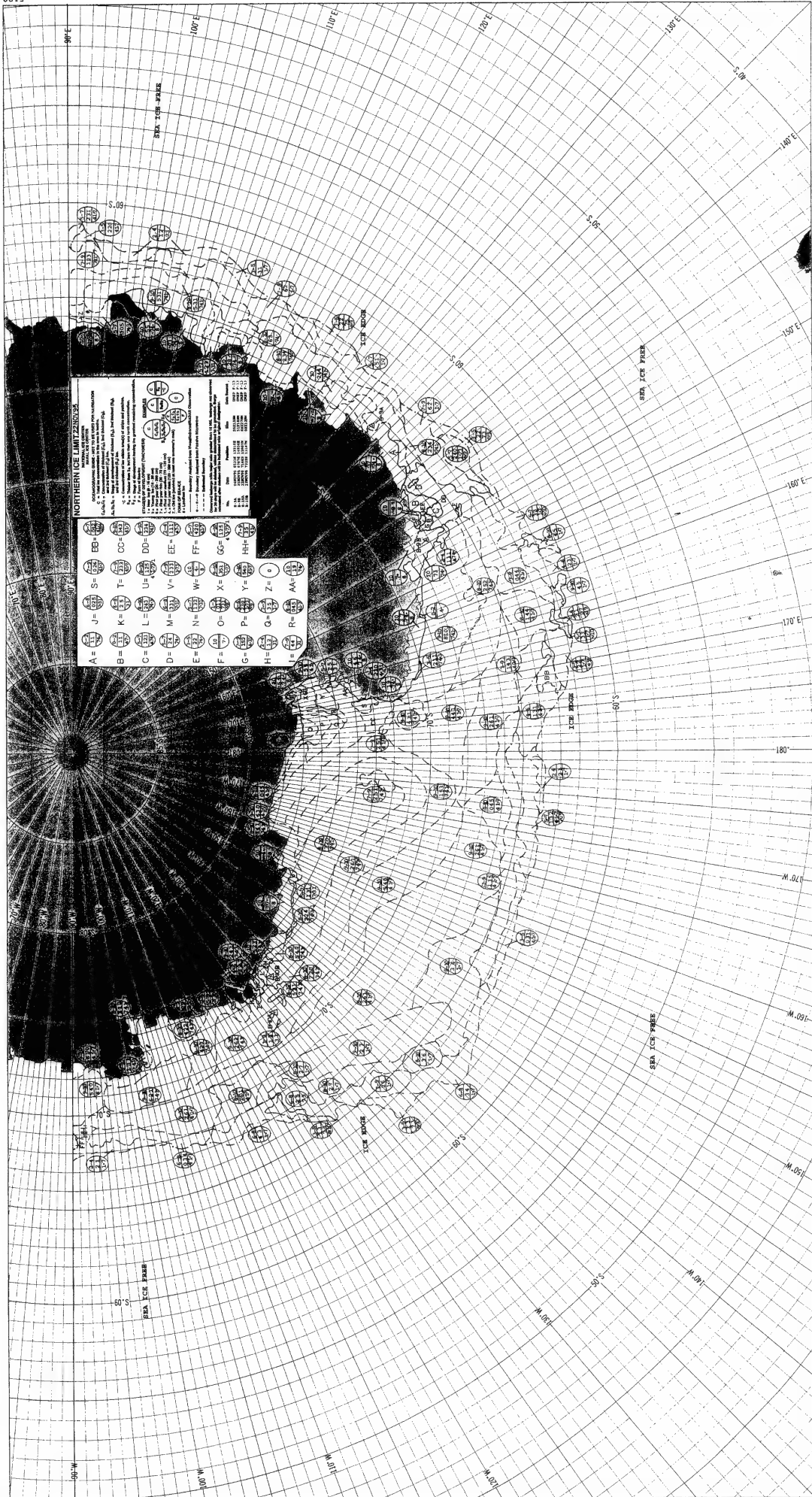


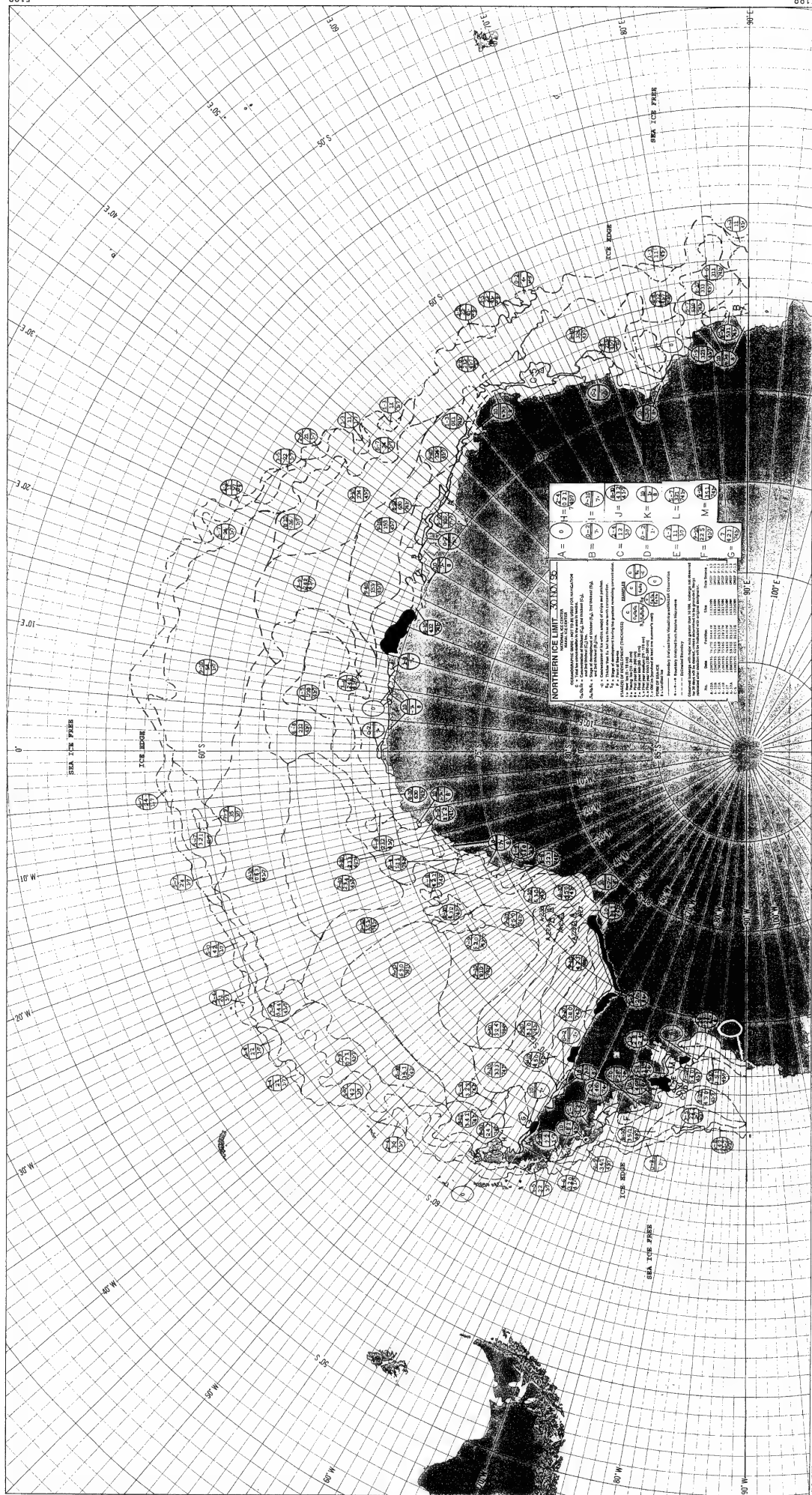


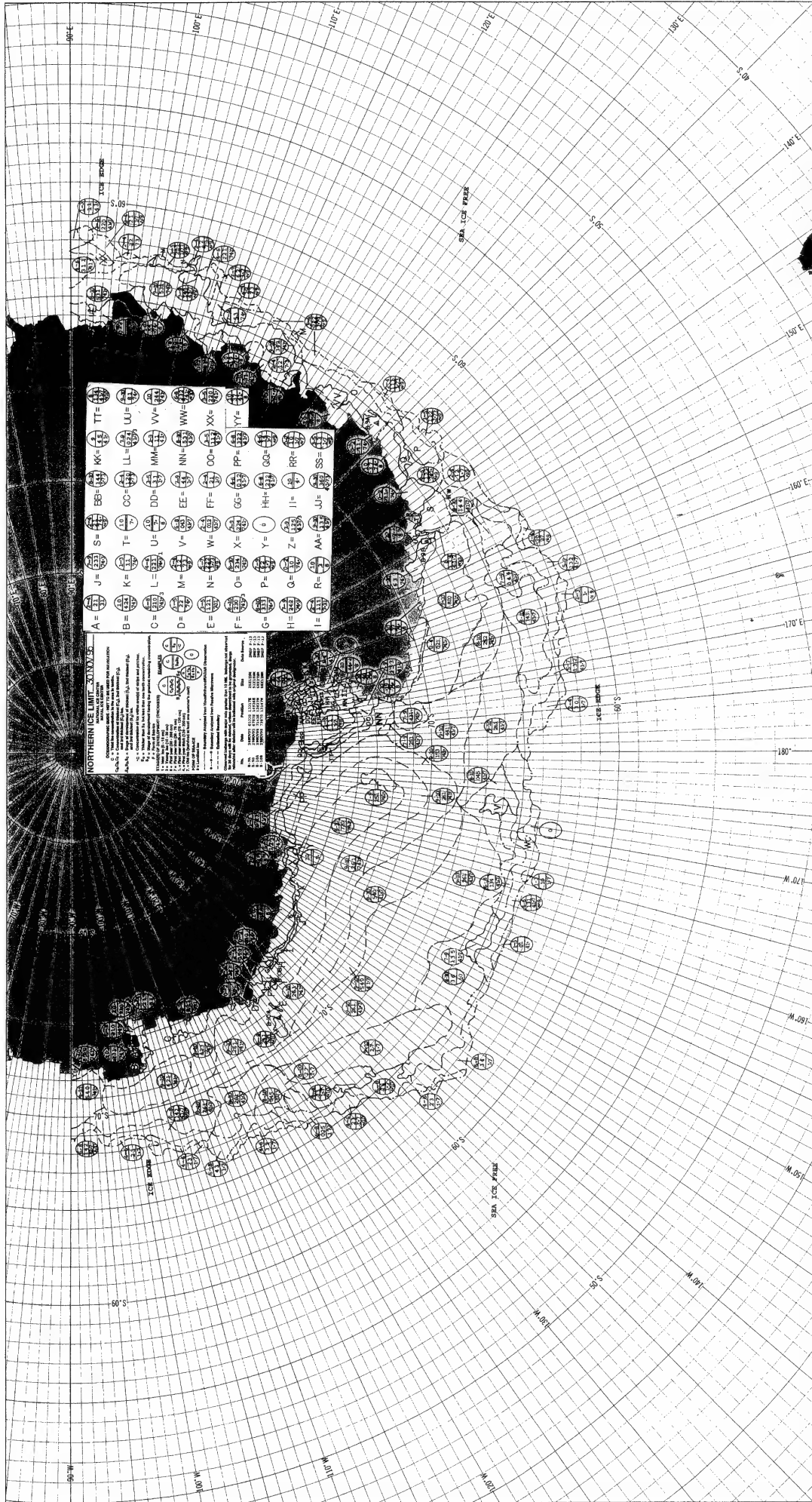


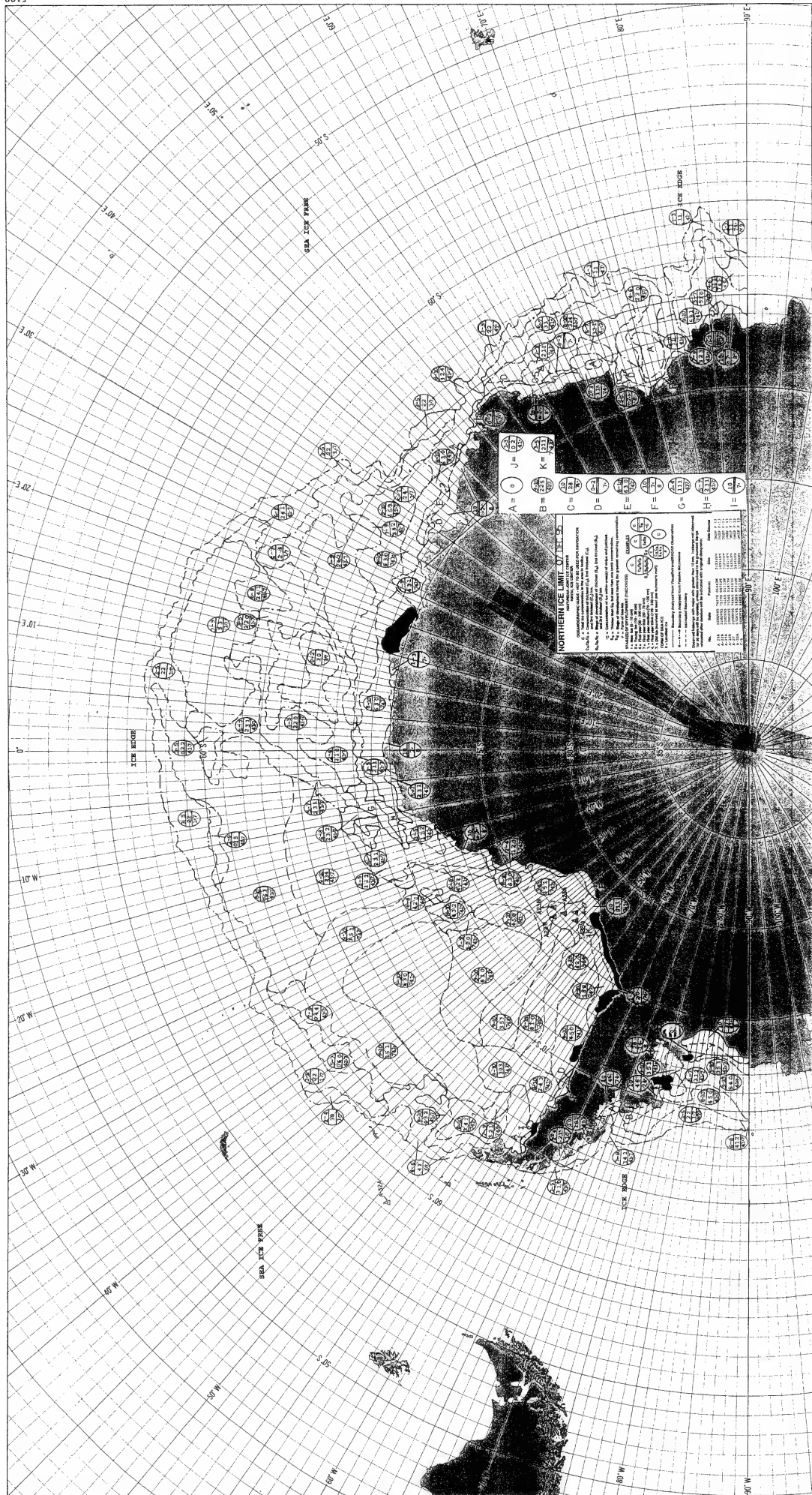






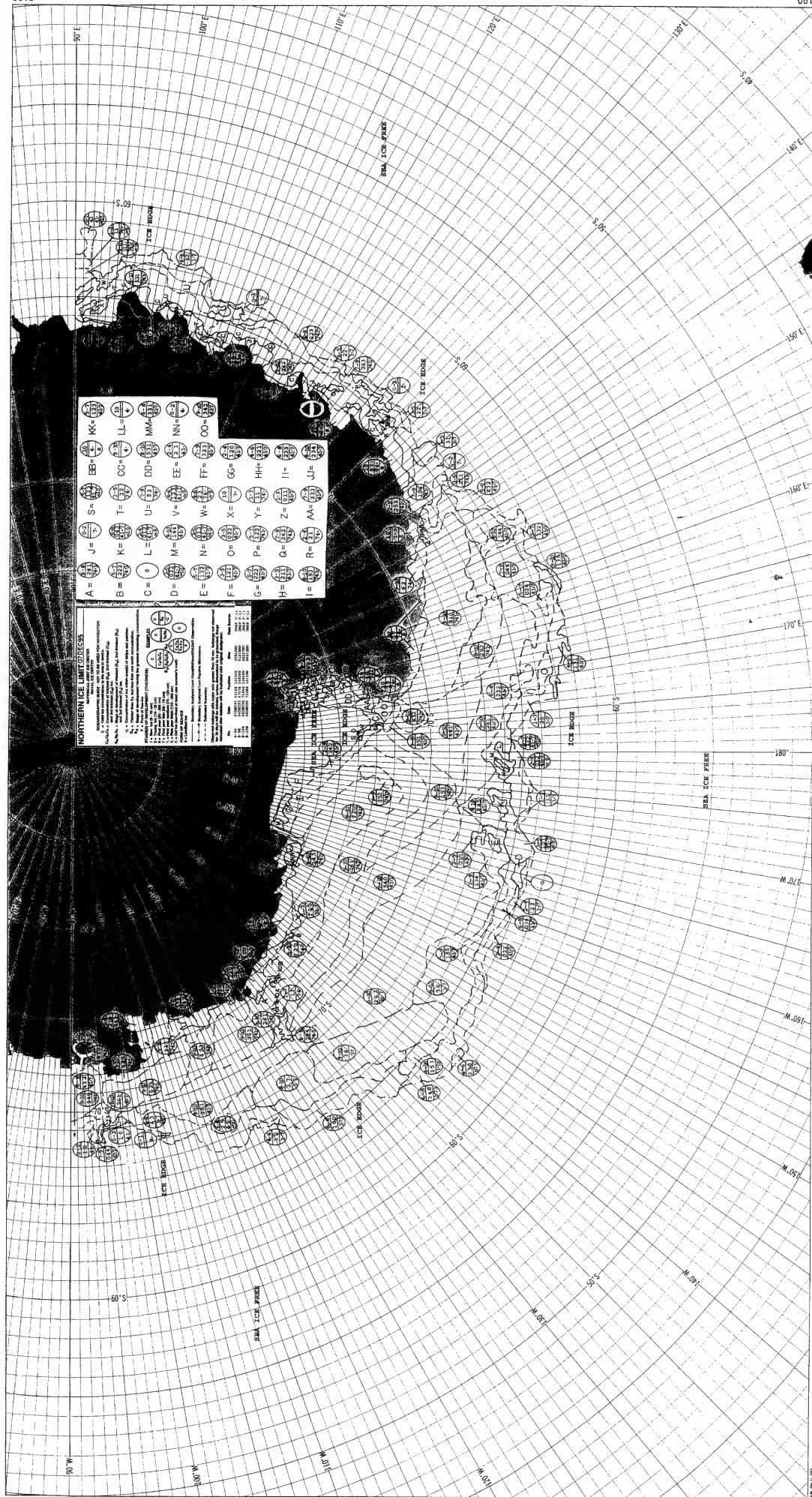






Projection: Polar Stereographic
Scale: 1:100,000

Scale: 1:100,000
Projection: Polar Stereographic



A = $\frac{1}{100}$	J = $\frac{1}{100}$	S = $\frac{1}{100}$	EE = $\frac{1}{100}$	KK = $\frac{1}{100}$	LL = $\frac{1}{100}$
B = $\frac{1}{100}$	K = $\frac{1}{100}$	T = $\frac{1}{100}$	CC = $\frac{1}{100}$	MM = $\frac{1}{100}$	NN = $\frac{1}{100}$
C = $\frac{1}{100}$	L = $\frac{1}{100}$	U = $\frac{1}{100}$	DD = $\frac{1}{100}$	AA = $\frac{1}{100}$	OO = $\frac{1}{100}$
D = $\frac{1}{100}$	M = $\frac{1}{100}$	V = $\frac{1}{100}$	EE = $\frac{1}{100}$	FF = $\frac{1}{100}$	GG = $\frac{1}{100}$
E = $\frac{1}{100}$	N = $\frac{1}{100}$	W = $\frac{1}{100}$	FF = $\frac{1}{100}$	GG = $\frac{1}{100}$	HH = $\frac{1}{100}$
F = $\frac{1}{100}$	O = $\frac{1}{100}$	X = $\frac{1}{100}$	GG = $\frac{1}{100}$	HH = $\frac{1}{100}$	II = $\frac{1}{100}$
G = $\frac{1}{100}$	P = $\frac{1}{100}$	Y = $\frac{1}{100}$	HH = $\frac{1}{100}$	II = $\frac{1}{100}$	JJ = $\frac{1}{100}$
H = $\frac{1}{100}$	Q = $\frac{1}{100}$	Z = $\frac{1}{100}$	II = $\frac{1}{100}$	JJ = $\frac{1}{100}$	KK = $\frac{1}{100}$
I = $\frac{1}{100}$	R = $\frac{1}{100}$	AA = $\frac{1}{100}$	JJ = $\frac{1}{100}$	KK = $\frac{1}{100}$	LL = $\frac{1}{100}$

NOTES:

1. This chart is based on the latest available information and is subject to change without notice.

2. The scale of this chart is 1:100,000.

3. The compass rose shows the True North, Magnetic North, True South, and Magnetic South.

4. The scale bar shows distances in Nautical Miles.

5. The latitude and longitude lines are marked in degrees and minutes.

6. The regions are labeled SEA ICE FREE and SEA ICE.

7. The navigation symbols are used to indicate various navigational data.

